

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF NEW MEXICO

UNITED STATES OF AMERICA,

Plaintiff,

vs.

PATRICK DURAN,

Defendant.

No. 1:14-CR-03762-WJ

Pete V. Domenici U.S. Courthouse
Bonito Courtroom

Albuquerque, New Mexico

Monday, November 19, 2018

8:30 A.M.

TRANSCRIPT OF PROCEEDINGS
DAUBERT HEARING RE: DEFENDANT'S PROPOSED EXPERT
VOLUME 1
BEFORE THE HONORABLE WILLIAM P. JOHNSON
CHIEF UNITED STATES DISTRICT JUDGE

APPEARANCES:

For the Plaintiff: KYLE NAYBACK
NICHOLAS MARSHALL
UNITED STATES ATTORNEY'S OFFICE
District of New Mexico
Post Office Box 607
Albuquerque, New Mexico 87103

For the Defendant: JOHN MOON SAMORE
SAMORE LAW
P.O. Box 1993
Albuquerque, New Mexico 87103

Reported by: MARY K. LOUGHRAN, CRR, RPR, NM CCR #65
United States Court Reporter
Phone: (505)348-2334
Email: Mary_Loughran@nmcourt.fed.us

Proceedings recorded by mechanical stenography; transcript
produced by computer.

I N D E X

W I T N E S S E S

JOSEPH SCHELLER, M.D.

DIRECT EXAMINATION BY MR. SAMORE6

CROSS-EXAMINATION BY MR. NAYBACK57

REDIRECT EXAMINATION BY MR. SAMORE95

BLAINE HART, M.D.

DIRECT EXAMINATION BY MR. MARSHALL109

CROSS-EXAMINATION BY MR. SAMORE143

REDIRECT EXAMINATION BY MR. MARSHALL156

EXHIBITS

FORMALLY MARKED/IDENTIFIED

Government No.	Page
----------------	------

1 through 24 - Government Binder	108
----------------------------------	-----

25 - Pediatric Neurology Article: Retinal Hemorrhages in Nonaccidental Trauma	159
---	-----

26 - Review Article: Subdural Hygromas in Abusive Head Trauma	159
---	-----

* * * * *

1 (In Open Court at 8:34 A.M.)

2 THE COURT: This is the case of the United States vs.
3 Patrick Duran, 14-cr-3762.

4 would counsel enter their appearances for the record,
5 please.

6 MR. NAYBACK: Good morning, Your Honor. Kyle Nayback
7 on behalf of the United States. At counsel table is Nicholas
8 Marshall. Seated in the gallery is Dr. Carole Jenny,
9 Dr. Leslie Strickler, who is walking into the room, and we have
10 got a third doctor who is participating, Dr. Hart, who is a
11 radiologist from UNM. Thank you.

12 MR. SAMORE: John Moon Samore for Mr. Duran, who is
13 present in the courtroom, Judge, and in the gallery is
14 Dr. Joseph Scheller, who will be testifying today. And we can
15 discuss a little bit before we begin how we're going to move
16 through this thing.

17 THE COURT: Sure, go ahead. What did you want to
18 discuss before the witness testifies?

19 MR. SAMORE: What I understood, before we begin, is
20 that the anticipation is that we can go to 2:30 today.

21 THE COURT: Yes.

22 MR. SAMORE: Both sides are hopeful of getting our
23 primary out-of-town witnesses on the stand and testifying, so
24 we are going to put Dr. Scheller on first. Dr. Jenny, I think,
25 will also be testifying. I think Dr. Strickler and Dr. Hart

1 live near here, so they may be testifying, but probably not
2 today.

3 we did want to note, before we begin with
4 Dr. Scheller, that it appears from the Government's motion that
5 there are only two opinions that it's questioning, and those
6 are found in Paragraph 5. And the only two opinions that they
7 have questioned in the motion are regarding whether the
8 "victims of child abuse are often found to have unexplained
9 bruises, rib and limb fractures, scalp injuries, brain
10 injuries, and neck injuries;" and then the second portion of
11 this challenge is whether subdural hygromas "are not related to
12 accidental or abusive trauma."

13 Dr. Scheller is prepared and we are prepared to
14 answer questions and present evidence regarding the opinions
15 that he has offered and his background, but those are the only
16 two opinions that were challenged in the motion, and we feel
17 that we should certainly make a record, but that's all that the
18 Government can raise in its challenges today.

19 MR. NAYBACK: I disagree, Your Honor. This is a
20 Daubert challenge. Those are two examples of the problems that
21 we had with Dr. Scheller's opinions. Under the Daubert
22 standard, all of Dr. Scheller's opinions need to be rooted in
23 science. We don't believe they are, and we intend to challenge
24 his credentials and everything about the report he's tendered.

25 Secondly, with regard to housekeeping, I think

1 Mr. Samore and I came to an agreement, but in order to expedite
2 things today, we have an exhibit binder that I'd like to tender
3 to the Court. We were hoping to give this to the Court and go
4 quickly back and forth with the exhibits, instead of laying
5 foundation and tendering them.

6 THE COURT: Is that acceptable?

7 MR. SAMORE: Judge, it is pretty close to acceptable.
8 I want to clarify that we have clarified a portion of those
9 records as far as the reports and CV foundations. That's fine.

10 The Government has put into evidence portions of some
11 rulings on several cases that Dr. Scheller testified in, and
12 those are hardly complete. We are not going to question that
13 he can be asked questions about those cases. The relevance is
14 something we would dispute, particularly when each case is
15 decided on an individual basis. So as far as whether they can
16 ask him questions about those for purposes of this hearing, we
17 think that's appropriate.

18 We also note that we have included in our exhibits
19 and have offered additional references to legal articles.
20 Those are not -- were added as supplemental authorities. Those
21 are only authorities in support of the position we have that we
22 think the Government is going to share, that there is dispute
23 and controversy about shaken baby, abusive head trauma, and
24 those issues. They are not going to be the primary grounds by
25 which we are asking the Court to rule in this hearing. We are

1 going to deal with those medical issues, but that is the
2 purpose for which they are offered. And I don't think the
3 Government is going to question that they can be presented.
4 Their relevance, again, would be subject to the Government's
5 argument. Thank you.

6 THE COURT: All right. Well, let's go ahead and get
7 going with the testimony. Let's go ahead and start with
8 Dr. Scheller.

9 MR. NAYBACK: Thank you.

10 MR. SAMORE: We call Dr. Scheller, please.

11 MR. GARCIA: Please raise right your right hand, sir.

12 (JOSEPH SCHELLER, M.D., DEFENSE WITNESS, SWORN)

13 MR. GARCIA: Please have a seat and state your full
14 name for the record.

15 THE WITNESS: Joseph Scheller. s-c-h-e-l-l-e-r.

16 DIRECT EXAMINATION

17 BY MR. SAMORE:

18 Q. Dr. Scheller, you brought to the witness stand your
19 computer. Will you be referencing that at portions of your
20 testimony today?

21 A. I intend to show some of what I call demonstrative type
22 exhibits to explain concepts of anatomy that are sometimes
23 difficult to comprehend without the pictures.

24 Q. All right. Prior to referring to any exhibits or
25 discussing your opinion in this case, in particular, let's

1 review with this Court and make a record on your
2 qualifications.

3 Have you previously testified in New Mexico Federal Court,
4 to your recollection?

5 A. I did testify in the state of New Mexico recently, but I
6 don't remember if it was federal court or another kind of
7 court.

8 Q. All right. Do you recall if you testified, within your
9 memory, before Judge Johnson?

10 A. This Judge?

11 Q. This Judge.

12 A. I don't believe I ever have testified in Albuquerque
13 before.

14 THE COURT: That's all right. I don't have a
15 recollection of Dr. Scheller.

16 BY MR. SAMORE:

17 Q. Tell us where you practice and what the area of your
18 medical practice is today.

19 A. Currently I'm seeing patients two days a week in my
20 private office in Baltimore, Maryland, and then three days a
21 week I work on medical-legal, or forensic cases. That means an
22 attorney will contact me to give an opinion about a head injury
23 case, or a toxic exposure case, or a malpractice case, or a
24 birth complication case. There are several types of cases that
25 I get calls about, and that's what I do the three days of the

1 week. So, part-time private practice of pediatric neurology
2 and part-time medical-legal work.

3 Q. And prior to your present position as a child neurologist,
4 what were your recent positions that you have held?

5 A. I guess I'll go backwards in time. From 2012 to 2014, I
6 was a fellow, which means a trainee, in brain and spine
7 neuroimaging at the Winchester Medical Center in Winchester,
8 Virginia. Neuroimaging is a specialty of neurology. It is not
9 neuroradiology, which is a specialty of radiology.

10 Before 2012, for 15 years, I was an attending physician at
11 Children's National Medical Center in Washington, D.C. So that
12 means I was a staff pediatric neurologist. I had hospital and
13 clinic obligations. I also had teaching obligations and
14 obligations in the laboratory. Pediatric neurology is the
15 diagnosis and treatment of children from the day of birth until
16 teenage years, usually late teenage years, with any type of
17 brain, spine, spinal cord, nerve, muscle, or developmental
18 condition. So we see anything from as simple as headaches to
19 as complicated as children in coma. There is an outpatient
20 half of it, and an inpatient half of it. So that takes us back
21 to 1997.

22 So, again, private practice. Before that, fellowship.
23 Before that, practice at Children's Hospital. Before that I
24 was a staff child neurologist at the University of Maryland in
25 Baltimore for five years, 1992 to 1997.

1 Prior to that, I was a fellow, a trainee, in epidemiology,
2 the study of risk factors for diseases in populations, and that
3 was back in 1991 to 1992. And then prior to that, for four
4 years, I was at Children's Hospital of San Diego as a staff
5 pediatric neurologist from 1987 to 1991.

6 So, basically, since 1987, except for two fellowship
7 blocks of time, I've been a practicing pediatric neurologist,
8 both inpatient and outpatient.

9 Q. When were you certified as a pediatrician with the
10 American Board of Pediatrics?

11 A. 1988.

12 Q. And are you certified as a child neurologist?

13 A. Yes. That was 1989.

14 Q. Tell us a little bit more about the neuroimaging and your
15 certification of what neuroimaging involves.

16 A. So, neuroimaging is a branch of neurology. Just like a
17 neurologist can be a specialist in strokes or Alzheimer's
18 disease or epilepsy, there is also fellowship or specialty
19 training in brain imaging. So even though every neurologist
20 gets basic training and is tested in the neurology board exams
21 on CAT scans, MRI scans, ultrasounds, and other imaging that
22 one can perform on the brain or spine or spinal cord, neurology
23 does offer this extra training and certification.

24 So, I did the extra training, took the exam, and now I
25 have that certification in the umbrella organization that

1 certifies a neurologist to have this specialty. It's called
2 UCNS. United Council of Neurologic Subspecialties. So
3 neuroimaging is one of those neurologic subspecialties. It is
4 not neurology and it is not neuroradiology.

5 Q. Now, in your practice as a pediatrician, do you see
6 children in that practice where there is concern for abuse?

7 A. Oh, sure.

8 Q. And could you --

9 A. Now, you said in my practice as a pediatrician. So even
10 though I unofficially practice pediatrics every day because I
11 live in a community where everybody knows who I am -- already
12 this morning I got a pediatric phone call from one of my
13 neighbors back in Baltimore -- I have not practiced official
14 pediatrics since 1991. In other words, in a clinic setting.

15 But in all the hospitals where I've been at, child abuse
16 is a real consideration, a real possibility, and it is
17 something that we see and I get involved in.

18 Q. Could you tell the Court and the Government some of the
19 ways that you are referred, if you are referred cases from
20 doctors in other areas that consult with you on cases where
21 abuse may be of concern?

22 A. The two main areas are where a child has a skull fracture
23 for no apparent reason -- and when we are talking about a
24 child, we are almost always talking about an infant or a
25 toddler. The reason for that is because once a child is two or

1 three or four, they have multiple ways of getting into trouble
2 and falling and hitting their head and getting skull fractures.
3 But when you have an infant or a toddler, who usually doesn't
4 fall from a height, if that child has a skull fracture, then
5 I'll be consulted to opine if -- to tell whether it's
6 accidental or inflicted or abusive.

7 And the second way I get involved is when an infant or
8 toddler has a subdural hemorrhage. A subdural hemorrhage
9 refers to a collection of blood clots that are in between the
10 brain and the inside of the skull. That's the most classic or
11 most common finding when somebody suffers a significant head
12 injury. Somebody will suffer an impact to the head, the brain
13 will be pushed up against the skull and then be pulled away
14 from the skull, and in that force a blood clot will be created
15 in between the brain and the inside of the skull.

16 So if an infant or child has a subdural hematoma, then I
17 will often be called if there is no good explanation for it,
18 and the question is, is that related to an abusive act, is it
19 related to an accidental injury, or is it possibly related to
20 another disease or condition.

21 Q. And that leads to my next question. Are you also
22 consulted regularly on cases that don't involve abuse, but
23 involve other possible neurologic problems?

24 A. Sure. As a neurologist, we are consulted for all types of
25 head injury. In other words, bicycle injuries, car accident

1 injuries, falls from height injuries, those kind of things.

2 We are also consulted about seizures on a regular basis.

3 Seizures are electrical storms in the brain that cause the

4 brain to stop functioning for a period of time, and a person

5 might pass out or shake all over or have a color change, stop

6 breathing, have a dramatic change in heart rate. So because

7 almost all seizures originate in the brain, that's one of the

8 primary things that neurologists are consulted for. So it's a

9 common reason for a consultation.

10 So, seizures, head injuries, and then all kinds of other

11 things like strokes, brain infections, so on and so forth.

12 Q. When you are consulted to help diagnose neurological

13 problems, are you involved with the individual child, or with

14 personal contact, or do you review records? How does that

15 work?

16 A. So, in medical-legal cases, I sometimes meet the youngster

17 and sometimes I don't. It really depends on the attorney,

18 depends on location, depends on a lot of things. When I'm

19 consulted in the hospital or as an outpatient, I'm always

20 meeting the patient and I'm always meeting, if it's a person

21 under 18, I'm always meeting a guardian or parent, whoever is

22 in charge of that person.

23 Q. Do you have regular child patients, as some folks that are

24 pediatricians do, or do you only consult in special cases in

25 those two days a week when you're serving in the pediatric

1 practice?

2 A. So for the two days a week, I'm seeing new patients, which
3 could be patients that are referred from family doctors or
4 pediatricians, or I'm seeing follow-up patients. For example,
5 yesterday I saw a youngster who was struggling with his
6 medication, and I had to see him urgently to fix that problem.
7 So people with epilepsy, people with migraines, people with
8 back pain, people with chronic complications from head
9 injuries, those are the kind of people I'm seeing on a regular
10 basis.

11 Q. Focusing on that portion of your practice, how many
12 patients are you seeing a year, approximately, just so that the
13 Court has an idea how many you're seeing? And this is in
14 2017-18, that period. Can you give an estimate?

15 A. I'd say between 500 and 1000.

16 Q. And over the course of your professional practice, what's
17 your experience in working with children that may have
18 neurological problems?

19 A. I've seen more than 25,000 children and teenagers and
20 young adults with possible or definite neurological problems.

21 Q. Now, during the time that you have served in your
22 professional career, has the quality of x-rays and images
23 improved?

24 A. Incredibly. Incredibly. I'm old enough to remember when
25 CAT scans were just coming out, and the images from the CAT

1 scans were very blurry and very, very rudimentary. And now
2 we've gotten much better. The CAT scan imagery is much, much
3 better. And the CAT scan has, in a lot of ways, been
4 superseded by the MRI scan, which the detail is something we
5 couldn't even imagine back in the 1970s. So it's a constant
6 process, and the radiology keeps getting better each year.

7 Q. And are you qualified to read CAT scans and x-rays and
8 neuroradiological images?

9 A. As a imaging specialist, I'm qualified to read CAT scans
10 and MRI scans and x-rays of the brain and spine. As a
11 pediatrician, I was trained to read routine things like chest
12 x-rays and routine abdominal films and routine limb studies
13 that look for fractures or other abnormalities.

14 Q. Are you familiar with the literature, the professional
15 literature, medical literature, regarding the issues in your
16 professional career which would include treating children that
17 may have abusive neurological injuries?

18 A. Yes. I've kept up with the routine things that I see,
19 which are epilepsy, migraine, head injury, and then head injury
20 that is suspected of being abusive head injury. So I have kept
21 up with that.

22 Q. And are you -- the opinions that you're going to be
23 offering today from your report, what is their basis?

24 A. Basically my training and experience and knowledge of
25 neurology and neuroimaging.

1 Q. Now, one question that I have, on which you touched, and
2 I'm just going to return to it briefly, is neuroimaging
3 considered a specialty?

4 A. Yes, it is a specialty of neurology. And again, certified
5 by an organization called the UCNS.

6 Q. Now, you've also told the Court that you do cases where
7 you're involved as a -- where you're consulted also by private
8 attorneys in possible criminal cases. Isn't that true?

9 A. Yes, sir.

10 Q. Do you take all those cases that you are referred, or do
11 you wind up testifying in each of those cases?

12 A. No, sir. I get calls from a lot of defense attorneys who
13 are defending people who have been accused of suspected abusive
14 head trauma, and I take some cases and some cases I tell the
15 attorney, I don't think I can help you.

16 Q. Now, have you diagnosed retinal hemorrhages in children
17 with neurological problems?

18 A. Yes. The retina exam, though not as sophisticated as an
19 ophthalmologist's retinal exam, is something that we are taught
20 is very important in our neurology training. The eye is
21 connected to the brain.

22 Q. But is that a standard part of your neurological
23 examination, to check the eyes?

24 A. Absolutely. 25,000 patients and 25,000 retinal exams.

25 Q. Can there be causes other than -- one of the constant

1 issues that may come up in our testimony today and with other
2 witnesses is, are there other causes than trauma to create a
3 retinal hemorrhage.

4 A. Absolutely.

5 Q. Could you tell us some of those causes, possible causes.

6 A. Oh, sure. Well, the number one cause, and it might be
7 considered traumatic, I don't believe it is, and that is being
8 born. In other words, three out of every ten children -- if
9 there are more than ten people in this courtroom, then three or
10 more of them at birth had retinal hemorrhages. So what that
11 means is, and there is usually no reason to do it, but if for
12 some reason an ophthalmologist went into a local hospital's
13 nursery and said, I'd like to check every normal baby's eyes,
14 that ophthalmologist would find that three out of every ten
15 babies did have retinal hemorrhages. So that tells us,
16 although birth can be considered mildly traumatic, there is
17 some squeezing of the skull and clearly a whole bunch of things
18 that are going on in the birth canal.

19 So somebody is being accused of having abused a newborn
20 baby, and yet babies are often found to have retinal
21 hemorrhages. So that tells us we need to consider other
22 mechanisms for retinal hemorrhages, including things that
23 change the pressure inside the skull and thus inside the eye,
24 which is connected to the brain.

25 Q. How do you measure whether there is those kind of changes?

1 what are the diagnostic tools that you use?

2 A. Now, I said the word pressure. Are you asking me
3 specifically about pressure or the diagnostic tools to look at
4 the eyeball?

5 Q. To look at the eyeball.

6 A. Okay. So, regular doctors like myself will use an
7 ophthalmoscope, and that's just a scope that shines a light
8 through the pupil and allows the person on the other side of
9 the scope to see the back part of the eye and the retina and
10 all the nerves that can be seen there. The ophthalmologists
11 use a much fancier tool. They dilate the eye and use a
12 retro-ophthalmoscope, and that allows them to view the periphery
13 of an eyeball. We're looking at the back of an eyeball, and as
14 neurologists we can only see a small part of the back of the
15 eyeball. The ophthalmologists can see a good part of the back
16 of the eyeball.

17 Q. Now, would you define, at least for the Court at this
18 point, what is a subdural hematoma?

19 A. I mentioned it before. A subdural hematoma is a blood
20 clot between the brain and the inside of the skull. The word
21 dura is talking about the piece of skin that covers the brain,
22 and so subdural tells us that it's underneath that piece of
23 skin. So there is a blood clot underneath the piece of skin
24 that is sitting between the brain and the inside of the skull.

25 Q. And another term that will come up in our testimony this

1 morning is a hygroma. What is a hygroma?

2 A. A hygroma is a fluid collection. So just fluid that is
3 sitting usually in a place where it doesn't belong.

4 Q. Can it be blood? Is it conceivable that it could be
5 blood, or can it be blood, do we know?

6 A. Well, can I sort of go back to explain what you need to
7 know to understand the answer?

8 Q. Please.

9 A. So a blood clot is a blood clot. I think we all know what
10 that looks like, and we are very, very familiar with it. But,
11 what happens when there is a blood clot in between the brain
12 and the inside of the skull?

13 So, what happens is, it sits there for a while, and then
14 the body starts to break it down and decompose it. So in that
15 first few days, maybe a week or ten days, it will look like a
16 blood clot, but then after that it will begin to break down and
17 look more like fluid and less like a blood clot. And so if
18 we're seeing a hygroma, it's just a collection of fluid. If
19 somebody sees a collection of fluid in between the brain and
20 the inside of the skull, a person can say, oh, well, that was
21 once a blood clot. Well, that might be true, but how would you
22 know?

23 So let me give a scenario. My son, the skateboarder,
24 doesn't wear his helmet and falls off his skateboard and hits
25 his head really hard. He goes in for a CAT scan and I say,

1 son, you have a subdural hematoma. It's not so big, so we're
2 not going to do surgery. Just lay low, stay off the
3 skateboard, and come back in a month and we're going to do
4 another CAT scan and make sure that that subdural hematoma is
5 going away.

6 He comes back in a month and the blood clot is gone, and
7 in its place is this collection of fluid. So in that case, the
8 doctor can say, well, I'm sure that you had an acute subdural
9 hematoma, I saw it on the scan, and now I'm sure it is going
10 away, but it's not completely gone because now I'm seeing fluid
11 there.

12 But let's say my son never had that first CAT scan, and
13 let's say all he had was -- he fell, he hit his head, didn't
14 want to go to the doctor, laid low for a couple of weeks, and
15 about a month later gets a CAT scan and all they see is fluid.
16 They can guess maybe he had a blood clot there maybe a month
17 ago, but nobody can tell him, I'm absolutely sure you had a
18 blood clot there a month ago. All we see is fluid.

19 Q. Do you have a demonstrative exhibit with you so that you
20 could illustrate the distinctions between how a subdural
21 hematoma might look as opposed to a subdural hygroma?

22 A. I do.

23 Q. And in this case, we are not asking to refer specifically
24 to this case, but just something that's illustrative.

25 A. Sure. So, I'm just -- can everybody see the window? The

1 window has -- the top of it says, "Documents DB," which is the
2 database. These are just some CAT scans and MRI scans that I
3 have in my files.

4 So, one of them is labeled "Acute Subdural Hematoma, Ten
5 Months." This is a child who fell off a kitchen counter and
6 landed on his head. It is not part of this case at all. It is
7 just purely demonstrative. I just want to get everybody
8 oriented, and then I'll show the -- I'm sorry, let me do it
9 this way. Yes, I'll do it this way. I'll get everybody
10 oriented and then show the abnormality.

11 So, on this --

12 THE COURT: would counsel approach for one brief
13 second?

14 (At the Bench as follows:)

15 THE COURT: Are these in the exhibits?

16 MR. NAYBACK: They are in the exhibits.

17 THE COURT: So the experts can go to the jury box if
18 they need to, as long as they can see.

19 MR. SAMORE: Judge, I think what I'll do is have him
20 give a case number or something for purposes of the record, if
21 we ever have to mark it. It may have a code, and that way at
22 least we know what we are looking at. That may help us.

23 THE COURT: Okay.

24 (End of discussion at Bench.)

25 (In Open Court)

1 THE COURT: If it would be easier for the other
2 experts to sit in the jury box where there are monitors, you
3 are welcome to do so. Are the monitors on?

4 MR. SAMORE: Thank you, Judge.

5 THE COURT: If you would, restate the last question,
6 and then Dr. Scheller can answer.

7 MR. SAMORE: Certainly.

8 BY MR. SAMORE:

9 Q. Dr. Scheller, as you describe this image to the Court, is
10 there a way you can identify it without giving the name of this
11 child? Is there a code that you have that we can at least put
12 in the record?

13 A. Well, it is labeled "Acute Subdural Hematoma, Ten Months."
14 I gave it a generic name.

15 Q. That's what I wanted, was a file name. Okay, please
16 continue.

17 A. I'm going to ask the Court to imagine that we can take a
18 virtual slicer, like a guillotine, and put it on top of a
19 person's head so that it's sitting from ear to ear, directly on
20 top of the head, and in theory we can do that and then slice
21 right down. We would remove the whole face and we would be
22 able to look face to brain at that person who got virtually
23 sliced and then see the left side of the brain, the right side
24 of the brain, and so on and so forth. And if we had that
25 slicer, which basically is what CAT scans and MRIs can do, then

1 we can take that slicer and move it closer to the forehead or
2 closer to the back of the head.

3 So, just to get everybody oriented, the slicer is just
4 over the soft spot. We can see the soft spot at 12:00. I'll
5 point to it. And then we slice directly down, and we have gone
6 through the eyeballs. So you can see the left eyeball, which
7 is this one, and then the right eyeball. And then you can see
8 the skull, which is completely white, and then the gray matter
9 inside the skull is the brain.

10 So as we go from front to back -- I'll just go to the
11 middle here. This is the back of the eyeball. So this is just
12 at the back of the soft spot. And again, we are seeing the
13 brain, which is the gray stuff, the bright white stuff, which
14 is the skull, and then there's something here that doesn't
15 belong here, and that is this. I'm going to call this a
16 cottony or cloudy-looking material.

17 Actually, this is a little better, because it sort of
18 looks more like cotton and like clouds. That's exactly what a
19 blood clot looks like. This child suffered a blow to the right
20 side of his head, and that blow caused some trauma to the
21 skull, caused some trauma to what was underneath the skull, and
22 it resulted in bleeding and then clotting right in between the
23 brain and the inside of the skull.

24 So if we call this top of the picture 12:00 o'clock,
25 imagining that this is a clock, and then if we call this part

1 of the picture 8:30, we can see that there is a blood clot that
2 extends from 8:30 to 12:00, and it is in between the brain --
3 it is not in the brain. It is in between the brain and the
4 inside of the skull. And if we look all the way to the right
5 side of this picture, it tells us that this is the right half
6 of the brain. So this is what we would call a right-sided
7 somewhat large acute, which means that it is new, subdural
8 hematoma blood clot that is underneath that piece of skin
9 called the dura.

10 Let's pretend this person did not need surgery. And I
11 don't recall if they did or not. But let's pretend that they
12 didn't, and we start to see it go away over the next several
13 days or week. What is it going to look like in a month? And
14 the answer is that this cloudiness or this cottony-ness will
15 turn into darkness as the blood turns into more of a fluid type
16 of base and not blood, as the body is breaking it down. So we
17 might get a very, very similar picture, but instead of any of
18 this cloudiness or cottony-ness, there's just a collection of
19 fluid there, or a collection of dark stuff. We have a hint of
20 it over here, but most of this will turn dark after a month or
21 so.

22 So one would be an acute subdural hematoma, and one is a
23 chronic subdural hematoma. We knew it was blood, and now that
24 it has turned into fluid, we can say it was a chronic thing.
25 But we knew it was blood prior to that.

1 Q. How does spinal fluid show on one of these images?

2 A. On the CAT scan, the spinal fluid is black, and we know
3 that. For example, if we take a look at this image, this image
4 shows the brain, which we know is gray, and right in the middle
5 of the brain we see a butterfly that's black. That butterfly
6 is a pair of lakes of spinal fluid that everybody has in his
7 brain. So we know that spinal fluid is going to show up as
8 black. And we can see spinal fluid in some other lakes deeper
9 or further down in the brain at 3:30, and then down around 6:00
10 and so on.

11 So spinal fluid on a CAT scan, and some of the MRI images,
12 is black, or almost black. Fresh blood is cottony or white,
13 cloudy white. And then the brain is sort of like the middle, a
14 charcoal kind of gray.

15 Q. So when you are attempting to offer a diagnosis for a
16 neurological injury, do you assess the color of the fluid as it
17 shows? And is that an important factor?

18 A. That's very, very important. And when you say color, I
19 mean, it's just going to be white, gray, or as they say
20 nowadays, shades of gray.

21 Q. The shades, tell us why.

22 A. Because as this blood clot, for example, begins to
23 dissolve or evolve or get digested, it's going to go from
24 cottony white on a path to black. But until it gets to that
25 black, and it's going to take weeks, it's going to be cottony

1 white, less cottony white, a little more gray, a little more
2 gray, and so on and so forth.

3 Q. Are you qualified to give opinions on neurological images
4 such as this?

5 A. Oh, yes. Well, I have been qualified in many other
6 courts.

7 Q. Now, turning your attention to -- in this young man's
8 case, did he need -- is there an apparent need for surgery on
9 this, or is this one of those things where you wait and watch?

10 A. In Calvin A.'s case?

11 Q. Pardon me; I'm talking about this case.

12 A. Oh, the case we're looking at?

13 Q. If you know.

14 A. I don't recall. I made this image last year, and I just
15 don't remember.

16 Q. Now, in your experience, and also with reference to your
17 training and what you have read, have you found that children
18 -- is there evidence that children's brains are more vulnerable
19 than adult brains? And by vulnerable, I mean vulnerable to
20 trauma.

21 A. Yes, but not for the reasons we think.

22 Q. Okay.

23 A. So, in other words --

24 Q. I'm going to narrow that question. How about infants.

25 Infants as opposed to adult brains, what is the evidence, if

1 any, that an infant brain -- it would seem to many of us that
2 growing up, they may be more vulnerable. Could you try to
3 address that question?

4 A. Sure. You say that they are more -- we know that they are
5 obviously more vulnerable in this way, and in other ways it
6 would be more a theory or a hypothesis.

7 In other words, if I look at you, you are 6'2" or
8 something like that, and you've got long legs, a big trunk, and
9 then your head is maybe one-sixth, one-seventh of the whole
10 picture. It's a very, very relatively small part of your whole
11 body.

12 with infants, their head is like one-third of their body.
13 And so if they are going to fall, they're going to fall with
14 their head first, because that's where the weight is, and
15 that's the problem. That's actually half the problem. So if
16 an infant falls, there's a very good chance he's going to fall
17 on his head, and that's because he has a higher center of
18 gravity.

19 The second problem is that if you, for some reason, fall
20 off a ladder, then you're going to have all of these protective
21 reflexes that are going to catch you. Maybe you'll break your
22 arm or break a leg trying to stop the fall. Young infants
23 don't really have very good protective reflexes until they get
24 to nine months or twelve months, so they're not going to be
25 able to catch or stop their fall by using a limb.

1 Q. Are there any definitive studies that have been created
2 using models as far as to establish -- and this is not even
3 getting to AHT -- to show that children's brains or heads may
4 be more vulnerable to injury? I should have said brains. I'll
5 limit it to that. That children's brains are more vulnerable
6 than adult brains.

7 A. The models confirm what I was saying about how the head is
8 a bigger part and weighs more and is sort of the first thing
9 that's going to hit the ground in a lot of falls. And then
10 they're using transducers to measure how much force is
11 generated on an infant's head when they hit the ground. But I
12 don't know that they have actually compared the amount with a
13 transducer of a fall, let's say an infant who falls three feet
14 head first onto his head versus an adult who falls three feet
15 head first onto his head. I don't know if that's been
16 compared.

17 Q. Have you studied neuro anatomy?

18 A. Yes, sir.

19 Q. Tell us what that is.

20 A. That tells us the names of everything and where they
21 belong in the brain, spinal cord, head, and the eyes, as well.

22 Q. Returning to the images, are you able to show us an image
23 of a hygroma --

24 A. well, maybe.

25 Q. -- to illustrate what we were looking at with a subdural

1 hematoma and a subdural hygroma?

2 A. I thought I would have access to the internet. Am I
3 allowed to connect to the internet? I was looking for a free
4 Wi-Fi, and I didn't see it. But I don't know if the Court has
5 one to connect it to or not.

6 THE COURT: There is one in the building, but I don't
7 know the password.

8 (A discussion was held off the record.)

9 A. I just want to make sure I can connect. There is an
10 encyclopedia for radiologists called Radiopaedia, and there is
11 a nice picture of a subdural hygroma there that I want to
12 share.

13 BY MR. SAMORE:

14 Q. For purposes of today, I don't think there is an
15 objection. I think that will help us. So if you're able to
16 show that, can you show us that?

17 A. I'm going to try.

18 Q. And then we will turn to the specifics.

19 A. Now, before I show it, I want to show what the normal
20 looks like so everybody can appreciate what the difference is.

21 Q. Please.

22 A. So this, again, is a generic child who does not have a
23 subdural hygroma. We once again have a slicer, and that is
24 from ear to ear. In this particular image, the slicer is over
25 the child's forehead. So we can see the eyeballs, we can see

1 the brain, which on an MRI scan looks very much like the brain,
2 and then we can see the skull. That is the outer arc on top of
3 the brain.

4 As we go closer, as we go into it, we'll be in the back of
5 the eyeballs here. So we can see on this image the back of the
6 eyeballs. That's what I'm pointing to now. And we can see the
7 brain very, very clearly above the eyeballs with all its hills
8 and valleys. And then we can see that the brain is up against
9 the inside of the skull, which is where it's supposed to be.
10 There is a little bit of fluid there. That's the black stuff.
11 That's just outside the brain. But the brain is up against the
12 inside of the skull, which is how most people are. So this is
13 a child who does not have a subdural hygroma.

14 I'm going to go back to that Radiopaedia image. Here it
15 is. We can compare this image -- let me get the almost exact
16 duplicate. This is close. I think this will work. Sorry;
17 it's taking me a minute.

18 Okay, so the image on everybody's left is an image without
19 a hygroma. This is a child who has a little bit of fluid in
20 between the brain and the inside of the skull, but just enough
21 so that you can see the outline of the ridges or the bumps on
22 the surface of the brain. The image on my right is a child
23 whose brain looks okay, yet there's something in between the
24 brain and the inside of the skull. It goes all the way from
25 about 9:00 to 12:00, and then again from 12:00 past 3:00.

1 Now, when we want to determine the nature of this -- and
2 let me just mention, incidentally, that this child was given a
3 dye for contrast and that's why we're seeing flecks of white.
4 This child does not have bleeding in the brain at all. So
5 let's try to analyze, what is the nature of this fluid -- I'm
6 sorry, what is the nature of this material that we are seeing
7 in between the brain and the inside of the skull.

8 well, is it spinal fluid? It definitely is not spinal
9 fluid -- and I'll enlarge the picture -- because we know the
10 spinal fluid sits in the lakes on the inside of the brain and
11 spinal fluid is black. And if we look really, really
12 carefully, we know that the brain sits in a bath of spinal
13 fluid and we can actually see spinal fluid just on the surface
14 of the brain, and that's the right amount of spinal fluid.
15 Just a little thin bath of spinal fluid that the brain is
16 sitting in.

17 So how can we describe the nature of this? well, we can
18 say it's lighter. It's a lighter shade than the blackness of
19 spinal fluid, but it's not nearly as light gray as the brain.
20 So all we can say about this fluid -- there's only one thing we
21 can say. This is fluid that is thicker than spinal fluid, but
22 certainly is not a solid like the brain. The brain is a solid
23 matter and that's why it's gray. Spinal fluid is very watery,
24 and that's why it's black. This is something in between.
25 That's all we can say.

1 Now, if we knew that a month prior this child had blood
2 where this fluid is, then we can say, I know for sure this is
3 chronic subdural hematoma. This is blood that has now evolved
4 and then digested and has turned into fluid. But if we don't
5 know, then we can just say, it's just fluid that is sitting in
6 between the brain and the inside of the skull, and we have to
7 try to imagine what put that fluid there.

8 Q. Can the bleeding such as that found in a subdural hematoma
9 occur without trauma?

10 A. The answer is, yes, but it really depends on the case. As
11 a general rule, no. A subdural hematoma is the body's reaction
12 to an impact trauma. But there are exceptions.

13 Q. And in this instance, you're showing us a subdural hygroma
14 -- this is the hygroma you're showing us?

15 A. Again, it is not spinal fluid, it is fluid of a thicker
16 nature.

17 Q. Is there protein in subdural spinal fluid?

18 A. There is. Just a very little.

19 Q. There is much more protein in blood?

20 A. Much more in blood. So here we are sort of halfway.

21 Q. Now, you have stated that, in your opinion, that one --
22 that most subdural hygromas are not accidental or abusive
23 trauma.

24 A. That's correct.

25 Q. Can you describe that more fully and some of the reasons

1 you render that opinion?

2 A. Sure. So, I first want to say I'm limiting my remarks to
3 infants, because old people get subdural hygromas. As people
4 get older, the brain begins, sadly, to atrophy a little bit.
5 It gets smaller and pulls away from the inside of the skull.
6 So old people can get fluid in between the brain and the inside
7 of the skull. So I'm not at all talking to what happens to old
8 people and their subdural hygromas or hematomas.

9 One of the things that we see in pediatric neurology and
10 neurosurgery is we see infants who are two or four or six or
11 eight months old, and their heads are way too big, and the
12 reason we know that is one of the pediatrician's jobs, in
13 addition to checking on so many other things, is also checking
14 growth. So they check weight as an indication of growth, they
15 check length, and they check the head size to make sure that
16 the head is growing appropriately.

17 Now, what is making every baby's head grow is the brain
18 grows and pushes the bone out. It pushes the skull out. So
19 the reason why my head is not the same size it was when I was
20 six months old is because, thank goodness, my brain continued
21 to grow and push the skull out with it. So we expect a normal
22 rate of growth in those first several months for babies, and
23 there are growth charts that document that.

24 So now the question is, what if there is brain plus
25 something else that's growing inside the skull? Then the skull

1 is going to grow too fast. So you'll get what we call
2 accelerated or rapid head growth. Pediatricians are checking
3 for that, and if they find it, right away they call either
4 myself or the child neurologist or the neurosurgeon and say, I
5 think this child needs a CAT scan. You have to explain what's
6 going on, and then describe it to the family and decide if it
7 needs treatment. So as a routine matter in the world of
8 pediatric neurology and neurosurgery, we are getting kids, who
9 are infants, and their heads are bigger than they should be.

10 If we put them through CAT scans or MRI scans, sometimes
11 we'll see this fluid collection and sometimes we'll see a
12 subdural hygroma. In other words, we have answered, why does
13 this child have a big head. Oh, the brain is growing, that's
14 good, but there's also fluid that is pushing the skull out and
15 making the skull grow even faster. And then we have to ask the
16 question, why did this child have a subdural hygroma?

17 So it's 100 percent true that a subdural hygroma can be a
18 complication of a head trauma. Did this child fall out of the
19 crib? Was this child in a car accident? Was this child a
20 victim of abuse? So that is a possibility. But in many of the
21 patients that I have seen, I have talked to the parents in
22 great detail, I have examined the child fully, and there is no
23 indication. The child is three months, six months, nine
24 months, the head is big, we see the subdural hygroma on the CAT
25 scan, and there's no indication of trauma whatsoever.

1 So then we have to ask the question, why did this subdural
2 hygroma occur? There is the sort of like obvious answer, which
3 is, we don't understand why. A lot of people say, we don't
4 know why it happened. But the other idea that I believe very
5 much is that it is a complication of birth, and what that means
6 is that fluid -- in the squeezing of the head at the time of
7 birth, fluid was allowed to accumulate in between the brain and
8 the inside of the skull, and that fluid simply hasn't gone
9 away. The body hasn't figured out a way to manage it.

10 So, many of the children that I've seen with subdural
11 hygromas that have caused them to have large head sizes in the
12 first year of life are children who have not been victims of
13 abuse, have not suffered trauma whatsoever. The only trauma
14 they have ever been through is birth. And you can actually
15 track their head size and say, oh, at birth they were 50th
16 percentile, at one month they were 75th percentile, at two
17 months they were 90th percentile, and now at eight months,
18 they're 98th percentile. Clearly this is a complication of
19 birth.

20 Q. Did you see in Dr. Jenny's opinion that she noted that
21 between four and six months, Calvin's head grew at a more than
22 normal rate? Have you seen that in her report, or letter?

23 A. Yes, sir.

24 Q. Did that play a role in your assessment of this case?

25 A. I believe I explained that in my own report, but I agree

1 with her about that.

2 Q. And can those kind of excessive growth rates resolve in a
3 benign way on their own with no complications?

4 A. Yes. In fact, this condition used to be called -- the
5 name of too much fluid inside the head is hydrocephalus. When
6 you have the fluid outside the brain, that's called external
7 hydrocephalus. And this kind of condition used to be called
8 benign, no big deal, external, outside the brain, too much
9 fluid, hydrocephalus. In the vast majority of cases, as the
10 brain continues to grow, it squeezes the fluid out and the
11 fluid finds a place to go, and the children, by the time they
12 are one-and-a-half or two or two-and-a-half, the fluid is gone.
13 Where did it go? We don't know. But they resolve it on their
14 own. In rare cases, a surgeon has to go in and drain the
15 fluid, and in even more rare cases, there are complications
16 from this fluid.

17 Q. Now, you also tell us in your opinion that victims of
18 child abuse are often found to have unexplained bruises and rib
19 and limb fractures, scalp injuries, brain injuries and neck
20 injuries.

21 MR. NAYBACK: Your Honor, I'm going to object real
22 quick. Excuse me, Mr. Samore. I was waiting for a tender of
23 the expert, and then I was going to request to voir dire. It
24 seems like we have glided right into the doctor's opinions. I
25 don't know if that was going to be left out.

1 MR. SAMORE: For purposes of a Daubert motion, the
2 last time I did one of these we just moved right through it,
3 getting the testimony in, and then because it was only to the
4 Judge, then the Government made its questions. But I can
5 certainly do that now and then let -- whatever order, I think
6 it comes out to the same place.

7 THE COURT: I'm going to reserve ruling, so I'll let
8 the parties make the record. But do you want to challenge his
9 qualifications?

10 MR. NAYBACK: If you're going to hold it under
11 advisement, Your Honor, then I will wait until Mr. Samore has
12 completed and I will simply voir dire the witness at that time.

13 THE COURT: Okay.

14 MR. SAMORE: That's what we did the last time. It
15 wasn't with this Court, but it got the opinions out, and then
16 the voir dire happened at one time.

17 THE COURT: Okay.

18 MR. SAMORE: I am going to be offering the doctor as
19 a child neurologist, pediatric neurologist, at least in that
20 regard.

21 BY MR. SAMORE:

22 Q. Now, I think my question was, back to the finding that
23 victims of child abuse are often found with unexplained
24 bruises, rib fractures, scalp injuries, brain injuries and neck
25 injuries, tell us what the basis is, largely, for your opinion

1 that that is often the case.

2 A. Well, I've been in children's hospitals for 25 years, and
3 that is just simply the circumstance. In other words, yes, it
4 is true that a single bruise might be an indication of child
5 abuse, it might not. But certainly the more findings that a
6 child has, that brings the child to our attention quicker. And
7 I can list 10 to 15 findings, and if a child has 10 to 15 of
8 them, that's certainly going to be extremely, extremely
9 suspicious for child abuse. And if a child has only one or two
10 findings, that's going to be a lot less suspicious. It's just
11 been my experience that way, that children who are victims of
12 child abuse tend to have a lot of findings.

13 Q. And is it possible that children who have been the victim
14 of abuse will not have any external injuries, but they may have
15 internal injuries that are not visible to the naked eye?

16 A. Absolutely.

17 Q. And you have found those kind of cases, too?

18 A. Yes, sir.

19 Q. And you're also, as well as from your training and
20 experience, you also are current and keep yourself informed
21 with the literature about abusive head trauma, shaken baby
22 syndrome, and other child abuse issues?

23 A. Yes, sir, I do, as a pediatrician and particularly as a
24 pediatric neurologist.

25 Q. Now, in this case -- I'm going to try to move us toward

1 Calvin's case right now so Mr. Nayback can ask his questions.
2 what records did you review in preparation, prior to rendering
3 your opinion on this case?

4 A. I don't remember all the records that I reviewed, but I
5 did review the medical records, including the hospitalization
6 -- oh, I did have all the pediatrician records. I'm sorry.
7 I did have the birth records, I did have the medical records
8 from the hospitalization when the child was, I believe, eight
9 or nine months old -- it was I think September of the year in
10 question -- and then I did get to see follow-up records.

11 I reviewed the images, which included CAT scans and MRI
12 scans, and then I reviewed reports. There's a report from
13 Dr. Plunkett, a report from Dr. Jenny. I'm not sure if I
14 recall other -- there was a report from a child abuse doctor.
15 I can't remember her name. And there were a lot of interviews
16 of the client and that kind of thing. I paid most attention to
17 the medical record.

18 Q. And then last night, did you have the opportunity to at
19 least give a read or some review of the Government's exhibits
20 that I provided to you when you arrived in Albuquerque last
21 night?

22 A. Yes, sir. Thanks for giving them to me.

23 Q. Do you -- I know Mr. Nayback will be asking you questions
24 about that, but are you familiar, or did you at least recognize
25 some of the literature that went back as far as 1972 about

1 hygromas that was included?

2 A. Sure.

3 Q. Dr. Jenny's only reports that you have seen are the one in
4 April of 2017, and then also -- that was regarding
5 Dr. Plunkett's opinion, and then there was also an August 23,
6 2018, letter that was sent to the defense on September 12th.
7 Have you seen that?

8 A. Yes, sir.

9 Q. All right. Now, to assist the Court in addressing these
10 issues, Dr. Plunkett referred to what he described as BESS.
11 What is that condition?

12 A. Can I show a demonstrative?

13 Q. Please.

14 A. I'm at the website as everybody can see called
15 Radiopaedia, and in this particular set of images, this child
16 actually has both too much spinal fluid around the brain on one
17 side and then too much subdural fluid, the subdural hygroma, on
18 the other side. What BESS stands for is -- the "B" is for
19 benign. It usually goes away. The "E" is for expansion.
20 There's too much. So it's Benign Expansion of the Subarachnoid
21 Space.

22 Let me show one other demonstrative so this becomes more
23 logical, and that is a diagram of the coverings of the brain.
24 I'm sorry I didn't show that before. I think this is a good
25 one.

1 So, this is sort of a cutaway kind of view where you can
2 see what is between the brain and the hair. On the outside,
3 we've got the scalp. Underneath the scalp, we have a thicker
4 layer called the periosteum; peri meaning around the bone. And
5 then we have actually got the skull. Then these two layers,
6 one I'll call sort of gray and one sort of skin-colored -- and
7 this is just a diagram -- that is the dura. They describe it
8 on this graphic as periosteal. In other words, the dura next
9 to the bone. And then the meningeal, the dura closer to the
10 brain. So it's sort of a double layer.

11 Then we've got the final layer, which is the arachnoid,
12 which in this diagram happens to be purple. The arachnoid is
13 the Saran wrap that surrounds the brain. This is the brain
14 below, in this diagram, and the arachnoid is the Saran wrap
15 that wraps the brain and keeps all the spinal fluid in. As I
16 said before, the brain sits in a bath. That bath is the spinal
17 fluid, and it is held in by this arachnoid membrane. So there
18 is fluid in between this space on the inside and the arachnoid.
19 That's the thin layer I described before, and that's supposed
20 to be there. It is supposed to be a thin bath.

21 what happens if there is too much fluid? If it
22 accumulates, then there's a problem of circulation and you get
23 this picture. So that's what we're looking at, where I have
24 the curser.

25 So, again, this happens to be the right side of the brain,

1 where I'm pointing, and in between the brain and the inside of
2 the skull, as we saw before, there really shouldn't be much
3 fluid at all, and yet here there's simply a larger amount of
4 fluid than you would expect. And we know that this is spinal
5 fluid, because this fluid that I'm pointing to at, let's say,
6 10:00, 11:00, 9:00, is the exact same black color as the spinal
7 fluid that sits in the lakes. So this child, on the right
8 side, has BESS. Too much spinal fluid. Benign Expansion of
9 the Subarachnoid Space.

10 Let me explain why it's subarachnoid. So, this is
11 fluid -- where did I put that graphic? This is fluid that is
12 sitting underneath this purple. So that's what's going on on
13 the right side. On the left side, on the left side, it's very,
14 very clear that this fluid is a different color. This fluid in
15 between the brain and the inside of the skull is lighter gray.
16 Not as light gray as the solid of the brain, but certainly not
17 nearly as black as spinal fluid. So on this side -- and if you
18 look very, very closely, you can actually see there is a very,
19 very thin layer of spinal fluid the way it should be right on
20 the surface of the brain.

21 But this child has too much fluid on the other side of his
22 head in the subdural space, which, again, is here. So this
23 child has a combination of both. Two completely different
24 conditions. Sometimes they run together, as you can see. But
25 the BESS that Dr. Plunkett referred to is an expansion in the

1 amount of spinal fluid outside the brain.

2 Q. And Dr. Jenny addressed that in her letter of April 2017.
3 You saw that?

4 A. Yes, sir.

5 Q. Was BESS a relevant factor at all in your assessment of
6 this child's condition?

7 A. This child, Calvin, actually did not have any sign of
8 excessive spinal fluid.

9 Q. Did you conclude that Calvin probably had a seizure?

10 A. Absolutely.

11 Q. Let's turn our attention to what you did find in your
12 review and in your report of Calvin. What were the most
13 relevant records that assisted in your analysis?

14 A. The imaging is very, very important, always, and also the
15 clinical material, what actually happened to him, what was the
16 outcome, how much did he suffer in the hospital, that kind of
17 stuff.

18 Q. Did he appear, from your review of the records, and, of
19 course, in your report, did he have a skull fracture?

20 A. No, sir.

21 Q. Was there reference in Dr. Strickler's report and in a
22 radiological report that one of the x-rays showed a linear
23 skull fracture?

24 A. There was a question of a skull fracture. There was not
25 one confirmed.

1 Q. Were there any other tests done that were more definitive?

2 A. Yes, sir.

3 Q. What were those?

4 A. The CT scan of the head.

5 Q. Did anything confirm any fracture?

6 A. No, sir.

7 Q. What about -- what did you find in the CT scan? How did
8 it appear to you?

9 A. I can show it, but he had a --

10 Q. Please.

11 A. He had a very, very small subdural hematoma. The Court
12 hopefully will remember the previous subdural hematoma which I
13 showed, which was large. Calvin's was much smaller, and I
14 believe this is it. Let's make sure this is the right person.
15 First and foremost, if we look at the top of the image, it's
16 got the name, Calvin A. If we look at the bottom right, we
17 have got the date, September 28, 2014.

18 This is different than the view that I showed you before.
19 This is what I would call the flipped bird's eye view. So
20 instead of the guillotine being on top, the virtual guillotine
21 being on top of the child's head, we can put that across the
22 top of the nose, front to back, and lift off the top of the
23 head and find out what's below. In a radiological case, that's
24 what they do, and then they flip the image so that the "R" --
25 this would be the right eye, and we know that because the

1 technician put the letter "R" there, and this is the left eye.

2 And again, we know that for the same reason.

3 This is the virtual slice through the eyeballs, and then
4 we can go up to the top of the eyeballs, that's the top of the
5 eyeballs, and then continue with the slicer and go up into the
6 forehead. So here we are in the forehead, and here we get the
7 first inkling of Calvin's acute subdural hematoma.

8 At 12:00, where I'm pointing, would be Calvin's forehead.
9 The oval is, of course, Calvin's skull. We already know that
10 spinal fluid is dark, blackish, or almost black, and we know
11 that a blood clot is going to look like wisps of cotton or
12 little clouds. So we get an inkling that between here,
13 11:00 and 11:30, this line is suspicious for a very thin, small
14 blood clot.

15 As we go higher, we can see that that blood clot is
16 present also in sort of like a thin line form at about 9:00,
17 9:00 to 9:30. And as we go higher to that, we're going to see
18 there's a little bit of blood clot that is between, I'll say,
19 10:00 and 10:30. And then we also see this little blood clot
20 that is in between the two hemispheres. It is this thin sort
21 of cottony little line in between the two hemispheres. As we
22 continue to go up, we still see that thin line, and that's
23 about it.

24 So, there is the presence of what we would call an acute
25 subdural hematoma. It is very, very thin. It is very, very

1 small. But he did have one on September 28, 2014.

2 Q. Could that have caused a seizure?

3 A. No, it could not have.

4 Q. Do you have an opinion as to what may have caused the
5 seizure?

6 A. Yes. And I need to give a little bit of background to
7 explain.

8 Q. Please.

9 A. Nobody on earth should ever get a subdural hematoma, but
10 if somebody does get one, because the blood clot is one layer
11 removed from the brain, it typically will not cause brain
12 compromise and will typically not irritate the brain. Brain
13 compromise is the idea that there is a part of the brain that
14 is acutely malfunctioning in a very important way so that the
15 brain cells are not working right.

16 Brain compromise is a very, very important feature,
17 because let's say somebody has a stroke. We're not at all
18 talking about Calvin, we're talking about a theoretical old
19 person. Say that theoretical old person suddenly can't move
20 his arm. You rush him to the hospital and they say, what's
21 wrong? He goes into the MRI machine, and an MRI -- a CAT scan
22 is not very good at this, but an MRI is so good. An MRI can
23 actually pinpoint an area of compromise in this patient's brain
24 that is controlling the arm. That part of the brain is not
25 working right now. Maybe it will get better, maybe not. Maybe

1 it needs treatment, maybe not.

2 So if there is brain compromise, we can understand that
3 that brain compromise would be enough to trigger a seizure.
4 The brain is a very, very sensitive organ and works with these
5 small electrical signals. If the electrical signals are
6 disrupted, that can cause a seizure. It is basically a
7 short-circuit in the electrical signals.

8 Calvin had an MRI scan that didn't show any brain
9 compromise, so we have sort of ruled that out. So, what might
10 cause a seizure --

11 Q. Let me interrupt you for just a moment. What would the
12 evidence be in an MRI that there is not a brain compromise? Is
13 it something we can see on the screen?

14 A. Not on my screen, but it is something that's visible on a
15 Microsoft screen, because there's a program for that that my
16 McIntosh can't read.

17 Q. Did you look for that before you entered your opinion on
18 the MRI?

19 A. Yes, sir. The name is called diffusion, the diffusion
20 technique of the MRI scan, and on the diffusion technique,
21 there was no image of brain compromise.

22 Q. I interrupted you. I'm sorry.

23 A. Again, let me make this as clear as I possibly can. A
24 traumatic acute brain compromise can trigger a seizure, because
25 something is happening in the brain. The brain is irritated,

1 and that disruption of normal brain electrical signals can
2 trigger a seizure.

3 However, Calvin did not demonstrate any evidence of brain
4 compromise on his MRI scan, which I think was the next day.
5 I'd have to look at my notes to be sure of that. I believe it
6 was the next day. So the question then comes up, what did
7 irritate his brain that caused a seizure? We know for sure
8 that he had a seizure once he came to the hospital. I very
9 strongly suspect that it was a seizure that caused him to have
10 this traumatic alteration in consciousness.

11 What can cause a seizure? The other thing that can cause
12 a seizure in this type of scenario is a little bit of blood on
13 the surface of the brain. In other words, subarachnoid blood.
14 So, again, let's look at that diagram to see if I'm making
15 myself clear to everybody.

16 Q. Is this going to be Calvin?

17 A. No, sir. This is just going to be the diagram.

18 So, again, if we look at this diagram, we can see that the
19 only way for something to actually get on the surface of the
20 brain to irritate it is to be under that purple layer, under
21 the arachnoid layer. All neurologists know that if somebody
22 has subarachnoid blood, a little bit of blood on the surface of
23 the brain underneath the arachnoid, that can trigger a seizure.
24 And we also know that if there is a little bit of blood in the
25 subdural layer -- in other words, one layer removed from the

1 brain -- that would not trigger a seizure unless it's so big
2 that it's squeezing the brain.

3 In that earlier CAT scan I showed you as a demonstrative,
4 that blood clot was so big it was actually squeezing the brain,
5 and the child did have seizures because the brain was being
6 compressed and irritated that way. What we see on Calvin's CAT
7 scan is a very thin, small amount of blood not on the surface
8 of the brain, one layer removed. So we then have to assume and
9 look for evidence on the MRI scan that Calvin, indeed, did have
10 subarachnoid blood on the surface of the brain, and that
11 evidence is, indeed, there on his MRI scan.

12 So let me then backtrack and say, I am sure that Calvin
13 had a seizure because he had a small subarachnoid hemorrhage,
14 and I have evidence of that. I didn't see it on the CAT scan.
15 It wasn't very visible. But I did see evidence of that on the
16 MRI scan.

17 Q. Now, Dr. Jenny in her letter that was critical of your
18 opinions described -- well, she identified that Calvin's brain
19 was concussed, and as evidence, it appears she described
20 post-concussive symptoms including prolonged high-pitch crying
21 and extreme irritability, and identified those as symptoms of
22 brain injury. Are those symptoms of brain injury?

23 A. Can be. In other words, if a baby does get concussed --
24 in other words, if somebody drops a baby from a height and the
25 baby hits his head, that baby could get the high-pitched cry

1 and lethargy. But it's also very much symptomatic of a
2 seizure. So, I mean, one can choose that concussion diagnosis,
3 but if the child then goes on to have a seizure in the hospital
4 and everybody admits to it, it was just a few hours later, then
5 why assume, oh, the child first had a concussion and then had a
6 seizure. Just say the child had a seizure.

7 Q. She also noted that -- I think I'm going to quote it.

8 "The acute bleeds on Calvin's studies are in some places where
9 there was no pre-existing subacute fluid, such as in the
10 posterior fossa and in the ventricle." Do you agree with that?

11 A. No, not at all.

12 Q. Could you describe why you do not agree with that?

13 A. Yeah. We have to start from the beginning of the
14 sentence, which is -- we, you and I, have talked extensively
15 about what a hygroma is and what a chronic or a subacute
16 subdural hematoma is, and that they might be the same thing,
17 but there is no proof that they are the same thing,
18 particularly in this case. Again, unless you have prior
19 evidence where you've actually seen an acute subdural hematoma,
20 you don't know if something is a chronic subdural hematoma or
21 even a subacute subdural hematoma, which just means something
22 that is maybe a week after the original event, or maybe two
23 weeks, something like that.

24 So the first thing that she says -- I need you to read it
25 to me, and then I'll stop you so I can explain that part and

1 then go on to the second. Can you read that quote again from
2 Dr. Jenny?

3 MR. SAMORE: May I approach the witness, Judge? I
4 have a copy, and it will probably be quicker.

5 THE COURT: Sure.

6 BY MR. SAMORE:

7 Q. It's Paragraph 4.

8 A. Can I continue?

9 Q. Please.

10 A. Okay. I'm sorry. Actually, she did write it correctly.
11 I apologize. So here is the first sentence. "The acute bleeds
12 on Calvin's studies are in some places where there was no
13 pre-existing subacute fluid" -- I agree with that 100 percent
14 -- "such as in the posterior fossa and in the ventricle."
15 Okay, that sentence is 100 percent accurate, and let me just
16 demonstrate. I don't have the -- I don't have the MRI that I
17 can show, but I can at least demonstrate on Calvin's study
18 where the posterior fossa is. Unfortunately, we don't see it
19 well enough to say if this is blood or not.

20 So, here are the eyeballs. Once again, this is Calvin.
21 This is September 28, 2014. If we go up to the forehead --
22 there's the forehead; I'm sorry. Just above the eyeballs, just
23 at the bottom of the forehead, so towards the back of the
24 picture -- actually, if we look really closely, we can see
25 Calvin's left ear and Calvin's right ear, and then if we look

1 from about 4:00 to 8:00, then we can see there is this big sort
2 of triangular part of the brain, and that is what we call the
3 posterior fossa. That's the back part of the brain. If we put
4 our hand at the back of our skull, that's the brain underneath
5 there.

6 So, Dr. Jenny writes that there was evidence of bleeding
7 there in the posterior fossa. In other words, if we look at
8 the MRI, which I can show you, you can see in between the brain
9 and the back of the skull, there is a little bit of blood
10 there. She is 100 percent correct about that.

11 what she is incorrect about is that subdural hematomas
12 move. Blood, before it clots, will flow, and it will flow to
13 the back particularly if a child is laying on his back. So it
14 is very, very common that we will see a child with a subacute
15 subdural hematoma on day one and all the blood is right at the
16 front of the head, and on days two, three or four, as we do
17 more CAT scans, we will see the blood is more towards the back,
18 because the child is laying on his back and the blood will move
19 or flow.

20 So to say the fact that there is blood in between the back
21 of the brain and the inside of the skull means something new is
22 going on, absolutely not. This is blood that has, I would say,
23 trickled down to that area. So that, to me, is not an
24 argument.

25 And then the second argument is actually my argument, but

1 she is making it in the reverse; ventricular blood. And let me
2 say exactly what that means. We don't see it on this picture,
3 but I had earlier pointed to these butterflies that are in the
4 middle of everybody's brain, and these butterflies are lakes of
5 spinal fluid. You see this pair here. We had seen on the
6 other view the same pair. The name of these lakes of spinal
7 fluid is ventricles. How does blood get into a ventricle? The
8 answer is that the bath that the brain sits in circulates. So
9 that same bath that we see on the surface of the brain is the
10 same bath that's going into the brain and sits in the lakes.
11 So this, to me, is proof positive that, indeed, Calvin had a
12 subarachnoid hematoma. There was blood underneath that layer
13 that got into the bath. And on the MRI scan, you can see some
14 blood in the bath. A very, very tiny amount, but there it is.

15 So her argument that, oh, you wouldn't expect that from
16 BESS, this condition that Calvin didn't have, I'd say you would
17 expect it in a child with seizures who simply just has a very
18 small subdural hematoma and we need to explain the seizures for
19 another reason.

20 Q. In the past, you and Dr. Jenny have testified for either
21 the prosecution or the defense on a number of occasions, but
22 you've been on the same cases together, haven't you?

23 A. Same cases on opposite sides of the fence?

24 Q. Yes.

25 A. Yes, at least twice that I know, but maybe more.

1 Q. All right. Just a couple of final questions. There's a
2 term, it's in some of the literature that both sides have
3 presented, and it's called the triad. Can you just describe
4 what the triad is and how it relates to shaken baby syndrome,
5 or abusive head trauma, and the issues that are generally
6 before the Court today?

7 A. Sure. So I have to sort of give like a preface to it and
8 just say that the number one cause in the entire world -- if
9 you're walking through any hospital emergency room and you see
10 a doctor say, there's a patient in the room with a subdural
11 hematoma, the number one cause you can assume, and there are
12 exceptions, is that that person suffered an impact injury, and
13 whether it was falling off a horse, whether it was getting into
14 a barroom brawl, whether it was a baby with an inflicted
15 injury, the number one cause of subdural hematoma in the whole
16 world is an inflicted injury -- I'm sorry; is an impact injury.
17 An impact injury means something struck the skull and that
18 force was then transmitted to the surface of the brain, and
19 that caused the bleeding in between the brain and the inside of
20 the skull. Number one cause, impact injury, for subdural
21 hematoma.

22 So, now we have a problem. We've got infants who are
23 three or six or nine months old, and they're coming into the
24 emergency room and they have a subdural hematoma and there's no
25 visible evidence of impact and no caregiver description of an

1 impact. And so everybody is asking themselves and the
2 caregivers, how did this child get a subdural hematoma if we
3 know the number one cause is an impact injury and nobody is
4 telling us the child had any impact and we're not seeing any
5 evidence?

6 The answer that somebody came up with back in the 1970s
7 was, perhaps violent shaking can also cause a subdural
8 hematoma. That idea is still out there. It has sort of
9 morphed into abusive head trauma, which is a vague term, but in
10 2009, people were saying violent shaking of an infant can cause
11 subdural hematoma, and it might.

12 Q. You're not denying that it is possible and it could
13 happen?

14 A. Certainly. I'm not denying that it is bad for anybody,
15 and nobody should ever shake anybody, violently shake anybody,
16 and certainly not a one-month-old, two-month-old,
17 something-month-old infant. But I'm also saying, there really
18 is no good scientific evidence that violent shaking of an
19 infant causes a subdural hematoma, like an impact injury causes
20 an acute subdural hematoma.

21 So part one of the triad is if an infant has an acute
22 subdural hematoma. Then you're one-third of the way there.
23 Part two of the triad is if a child has retinal hemorrhages.
24 That is a very important finding. Part three of the triad is
25 if a child had a dramatic change in consciousness, like Calvin

1 had. Child was fine, and then suddenly the child is
2 unresponsive or has a seizure or passes out.

3 Q. Has that last factor sometimes been described as
4 encephalopathy?

5 A. Yes. That's a fancy term that just means the brain is
6 malfunctioning.

7 Q. And in 2009, how did that --

8 A. Let me just finish my sentence. I apologize.

9 So the idea was, and it was in the 1980s, 1990s, first
10 decade of the 2000s, that if a person shakes an infant
11 violently, that person can produce the triad, and the triad is
12 subdural hematoma, retinal hemorrhages, and a dramatic change
13 in mental abilities, what we call encephalopathy. So, then,
14 there you have it. Without any evidence of impact, they would
15 conclude that a child had been violently shaken, and that is
16 shaken baby syndrome.

17 In 2009, the American Academy of Pediatrics changed the
18 terminology to something more generic and more vague, and they
19 have explained the reasons why in their consensus statement,
20 whatever their reasons were. So now the term has morphed into
21 abusive head trauma, which is telling you that not only has
22 that person violently shook an infant, it might mean something
23 more. But that's the preferred term nowadays.

24 Q. And are there some differences among professionals, not
25 just you and Dr. Jenny, but many professionals in the field

1 regarding the proof issues and whether the triad is associated
2 at a high degree with such injuries?

3 A. There is no --

4 Q. I misspoke. Is that triad of those physical observations,
5 the retinal hemorrhaging, the subdural hematoma, the
6 encephalopathy, highly associated with abusive head trauma?

7 A. Yes. There is a public disagreement about how important
8 and how scientific that type of diagnosis is.

9 Q. And I think the final question before I pass for cross is,
10 in your review of the evidence that you used to render your
11 opinions, did you find compelling evidence that pulling a
12 child, or yanking a child, taking a child, whatever the term
13 is, out of a bouncy seat and lifting them up in the air is
14 alone going to cause the kind of -- is going to cause the
15 seizure that was found in Calvin? Are you able to even address
16 that specifically?

17 A. I have no reason to think that that would be particularly
18 traumatic for a child, and certainly not for Calvin.

19 MR. SAMORE: No further questions. Pass the witness.

20 THE COURT: Let's take about a five or ten-minute
21 break, and then we'll come back and counsel may cross.

22 (Recess was held at 10:05 A.M.)

23 (In Open Court at 10:15 A.M.)

24 THE COURT: We are back on the record. Counsel may
25 cross.

1 MR. NAYBACK: Thank you, Your Honor.

2 CROSS-EXAMINATION

3 BY MR. NAYBACK:

4 Q. Dr. Scheller, prior to today, have your reports or
5 opinions ever been subject to a federal Daubert hearing?

6 A. I remember being a part of at least two other, maybe three
7 other Daubert hearings.

8 Q. Could I request those, and could you provide those to
9 Mr. Samore?

10 A. I don't have them.

11 Q. Let me ask you this: Were there rulings made, Doctor?

12 A. I don't even know.

13 Q. And you don't know the names of the cases?

14 A. No, sir.

15 Q. Okay. And when you go around the country and you fly into
16 state court, you're not usually challenged, are you?

17 A. I'm always challenged by a guy like you.

18 Q. Thanks, Doctor. If you come across those Daubert hearings
19 where there's been rulings, will you provide those to
20 Mr. Samore? Can I ask you to look?

21 A. Oh, sure. I don't do Nexis and Lexis kind of research,
22 though.

23 Q. Now, it sounds like that you have a private practice in
24 Baltimore; right?

25 A. Yes, sir.

1 Q. You're not affiliated with any hospital?

2 A. No, sir.

3 Q. And you don't sit on a child abuse response team?

4 A. No, sir. I've never been on a child abuse team.

5 Q. Okay. And you've never achieved academic tenure in any
6 position you've ever held, have you?

7 A. That's correct.

8 Q. You've never formally taught in a classroom setting about
9 child abuse?

10 A. Not to doctors.

11 Q. Okay. Well, if not to doctors, who, Dr. Scheller?

12 A. Social workers and attorneys.

13 Q. We'll get to the attorneys.

14 Can you explain how a child abuse examination is done
15 forensically?

16 A. Well, I'm not a child abuse doctor, but I've read hundreds
17 of them, so I can describe what I've read, and I've worked with
18 child abuse doctors.

19 Q. I'll pass.

20 would it surprise you to learn that it's a very
21 comprehensive exam that seeks to exclude other medical reasons
22 for brain injury?

23 A. One of the things. I mean, obviously they deal with other
24 injuries, but possibly brain injury, that's right.

25 Q. You've never spoken on behalf of the American Academy of

1 Pediatrics to issue proclamations about child abuse, have you,
2 Dr. Scheller?

3 A. Never.

4 Q. You've never been the director of a child abuse clinic?

5 A. No, sir.

6 Q. It sounds like in your current practice, you have a small
7 private practice, you treat kids maybe with epilepsy and
8 headaches.

9 A. Well, it could be anything, but a lot of it is epilepsy
10 and headaches.

11 Q. Okay. So you spend two days a week there, but the
12 majority of your time is spent traveling around the country
13 testifying on behalf of criminal defendants; isn't that right?

14 A. So, the travel is definitely big, but in the real world, I
15 probably travel like two days a month or three days a month,
16 and then the rest of the time I'm reviewing files, talking to
17 attorneys, that kind of thing.

18 Q. Have you participated in any studies about child abuse?

19 A. I've just written some case reports, that's it.

20 Q. Okay. And aside from, let's say, a public defender's
21 office, no government agency has ever sought your advice on
22 child abuse, have they, Dr. Scheller?

23 A. No, sir.

24 Q. Have you received any awards in your career regarding your
25 service as a neurologist?

1 A. No, sir. Pats on the back.

2 Q. But you have presented at a conference for defense
3 attorneys about defending child abuse cases; isn't that right?

4 A. Well, I'm not a lawyer, so I really can't tell them how to
5 defend it. I really more teach them how to understand
6 suspected abusive head injury.

7 Q. Well, you've spoken at more than one conference,
8 Dr. Scheller, and you know there's plenty of paper out there on
9 you; right? I mean, you know there's cases, there's fliers
10 where you speak. You understand that; right?

11 A. Sure.

12 Q. Okay. So, you spoke at a national parent attorney
13 conference, and you talked about medical conditions that mimic
14 medical findings presumed to be child abuse, haven't you?

15 A. Oh, for sure.

16 Q. Why would you do that?

17 A. Well, that's an interest of mine.

18 Q. An interest of yours is defending parents and criminal
19 defendants who have been accused of child abuse; isn't that
20 right?

21 A. I'll put it a different way, if that's okay.

22 Q. Well, you don't have to agree. I'm just asking you,
23 Doctor.

24 A. Well, that's not right.

25 Q. That's what you're doing in this case, you're providing an

1 alternative explanation for what is plain to other doctors
2 abusive head trauma.

3 A. I'm not doing that at all.

4 Q. How often have you testified as a defense doctor in cases
5 of suspected child abuse, how many times? Do you have a sense
6 of that?

7 A. Definitely more than 100. Probably more than 150.

8 Q. And when did that start? In recent years?

9 A. More than ten years ago.

10 Q. Okay. And you knew Dr. Plunkett before he passed away;
11 right?

12 A. Yes, sir.

13 Q. And you guys shared the same belief that there's no real
14 such thing as abusive head trauma; right?

15 A. That never came up, and we never spoke about that.

16 Q. That's hard to believe, Doctor. Is that real?

17 A. That's real.

18 Q. Okay. And you've never testified for the Department of
19 Justice or state prosecutors in any case where there's
20 suspected abusive head trauma, have you?

21 A. That's correct.

22 Q. You've always testified for the defense; correct?

23 A. That's right.

24 Q. And that's because you don't believe that abusive head
25 trauma is real?

1 A. That's not true.

2 Q. Okay. Let me ask it another way. Mr. Samore said there's
3 a legitimate legal controversy over whether abusive head trauma
4 exists. Do you remember him talking to you about that?

5 A. I don't know if he said the words legal controversy, so I
6 can't -- I'm not a lawyer, so I don't know where there's legal
7 controversy and where there isn't.

8 Q. Do you suspect there's a medical controversy?

9 A. There's definitely a medical controversy.

10 Q. And you put yourself in the five percent of doctors who
11 don't believe that abusive head trauma is a real phenomenon, a
12 medical phenomenon; is that right?

13 A. No, not at all. And you're putting me into a category
14 that's simply not true.

15 Q. Well, Doctor, there are several cases where you've
16 admitted that you are in the five percent versus the
17 ninety-five percent on the topic of abusive head trauma.
18 You're free to explain yourself, but I'm asking you, what puts
19 you in that five percent, Doctor, that you've admitted to in
20 many cases?

21 A. So I need to explain myself, and then I'm happy to tell
22 you how I ended up there.

23 Q. Okay. Go ahead, Doctor.

24 A. I was very much like your average pediatrician in the
25 1990s, and when somebody like Dr. Jenny said, I reviewed the

1 case and this is child abuse, I said, okay, great, thanks.
2 Let's do what we need to do. And then I got more interested in
3 it, and I realized that the scientific basis, the foundation of
4 diagnosing abusive child trauma -- back then it was called
5 shaken baby syndrome -- and diagnosing retinal hemorrhages the
6 very, very shaky. And the more I learned, the more I was
7 convinced that it was a diagnosis that was -- that didn't stand
8 on shaky scientific ground.

9 So the reason I come to court today and the reason I
10 testify in other cases is really just to educate the courts
11 about what we know and what we don't know about suspected
12 abusive head trauma.

13 MR. NAYBACK: Approach the witness, Your Honor?

14 THE COURT: You may.

15 BY MR. NAYBACK:

16 Q. Dr. Scheller, I'm presenting you with an exhibit binder.
17 I think Mr. Samore explained to me, anyway, that you had seen
18 this on another occasion. Would you please turn to
19 Government's Exhibit 8?

20 A. Did you say No. 8?

21 Q. Yes.

22 A. Yes, sir.

23 Q. Are you familiar with that paper?

24 A. Very.

25 Q. You've read it?

1 A. Yes, sir.

2 Q. Okay. Were you part author of that paper?

3 A. No, sir.

4 Q. Do you know any of the esteemed experts who were a part of
5 that paper?

6 A. Oh, I've been on the other side of the fence of almost all
7 of them. Not Dr. Slovis. Actually, Dr. Slovis was my teacher,
8 so I apologize. I do know he has passed away, but he was my
9 radiology teacher when I was a resident.

10 Q. This is a "Consensus statement on abusive head trauma in
11 infants and young children." Is that correct?

12 A. That's right.

13 Q. Would you venture to guess how many medical associations
14 support this consensus statement?

15 A. I've been asked by people like yourself in other trials,
16 and there's probably like 15 or 20 of them. Maybe more, even.

17 Q. Okay. Now, are there any medical associations or other
18 groups who sit on the other side of this issue, Doctor, besides
19 yourself?

20 A. Oh, yes sir.

21 Q. And who are they?

22 A. Right now, the only group that is on the other side is a
23 group in Sweden, and they are the people who are connected with
24 the journal called the Acta Paediatrica Scandinavica.

25 Q. Now, I hope I'm not mischaracterizing your own statement

1 that you're in the five percent of doctors who are on the other
2 side of this issue.

3 A. Well, I mean, that's a very vague statement, but I have
4 said I'm in the five percent. And, again, if you want me to,
5 I'm very happy to clarify what that means exactly.

6 Q. If you could, briefly.

7 A. Sure. The average pediatrician has trained in a pediatric
8 hospital and has seen child abuse with his own eyes, so
9 believes that it for sure happens, and I'm one of those people.
10 The average pediatrician believes that a child abuse doctor who
11 does not have specialized training in neurology has the
12 facilities to rule out neurological causes of mimics of abusive
13 head trauma. And so if a child abuse pediatrician says to an
14 average pediatrician, well, I've ruled out all the neurologic
15 causes, and so this is child abuse, the average pediatrician
16 will say, okay, good job, thanks.

17 Once one becomes a neurologist, like I became, one becomes
18 very, very critical of the ability to rule out other factors
19 that cause mimics of abusive head trauma. And so I'm in that
20 five percent that doesn't -- that is very skeptical when a
21 child abuse doctor says, I've ruled out all the neurological
22 causes and I've concluded that this is abusive head trauma.

23 Q. Have you ever held yourself out as a child abuse expert?

24 A. No, sir.

25 Q. Do you remember testifying in People v. Goins on

1 October 23rd of 2013?

2 A. I don't remember that specific case.

3 Q. Okay. Will you turn to Government's Exhibit 14?

4 A. I think, was it a Chicago case?

5 Q. Would you turn to Exhibit 14, Doctor?

6 A. Yep.

7 Q. Sorry; I get to ask the questions.

8 When you're there, please turn to Page 6 of 15, and let me
9 know when you're there.

10 A. I'm here.

11 Q. Top right column, if you'll read along with me, it says:

12 "Joseph Scheller, a pediatric neurologist and child abuse

13 expert." Is that how you held yourself out in that case,

14 Dr. Scheller?

15 A. It's a misrepresentation.

16 Q. Would the transcript, if I got it, reflect that?

17 A. I'm sure I didn't read the transcript. But I would never
18 say it, because it's not true.

19 Q. But you would listen to an attorney's tender of you as an
20 expert and clarify if they tried to qualify you as a child
21 abuse expert, you would correct them, wouldn't you, in open
22 court?

23 A. Yes, but it is possible that I had a momentary lapse. And
24 if they said pediatrician, pediatric neurologist, child abuse
25 expert, then I might have missed that one thing. But I have

1 never, and won't ever say that I'm a child abuse expert, until
2 I do the training.

3 Q. Are you planning on doing the training, Doctor?

4 A. I think about it.

5 Q. well, let's talk a little bit about your time down at the
6 clinic -- was it in Virginia or North Carolina, this most
7 recent training that you did?

8 A. Winchester, Virginia.

9 Q. Winchester, Virginia?

10 A. Yes, sir.

11 Q. Can you tell us a little bit more about how long you spent
12 there?

13 A. Two years.

14 Q. And was that every day of the week?

15 A. No, sir.

16 Q. Did you live down there?

17 A. I lived there for the week.

18 Q. Okay.

19 A. I came on Monday morning, and left on Friday afternoon.

20 Q. And how much coursework did that involve?

21 A. It wasn't any coursework. It was reviewing CAT scans and
22 MRI scans under the mentorship of people running the imaging
23 department there.

24 Q. Okay. And that is not a subspecialty that is endorsed by
25 the American Board of Medical Specialties; correct?

1 A. Not yet.

2 Q. Okay. And you're familiar with the American Board of
3 Medical Specialties, aren't you, Doctor?

4 A. Yes, sir.

5 Q. Okay. And, in fact, neuroimaging isn't even a
6 subspecialty in the American Board of Medical Specialties, is
7 it?

8 A. I didn't understand the "even" part. What do you mean?

9 Q. The American Board of Medical Specialties does not
10 recognize neuroimaging as a subspecialty, does it, Doctor?

11 A. Not yet.

12 Q. Okay. Are you advocating for that?

13 A. Other people are.

14 Q. Okay. So for two years, you spent some time down in
15 Virginia, and what did you walk away with? What type of
16 certification, and who was it by?

17 A. I mentioned it earlier. It's called the UCNS, United
18 Council of Neurologic Subspecialties. They give an exam in a
19 lot of different neurologic subspecialties, like stroke, like
20 Alzheimer's, like epilepsy. So I got a certificate from them.
21 I'm certified as a neurologic subspecialist which a specialty
22 in neuroimaging.

23 Q. Okay. You're not a radiologist; correct?

24 A. That's right.

25 Q. What does it take to be a radiologist?

1 A. The ability to stay awake in dark rooms for four years in
2 a row.

3 Q. Spare us the humor, Doctor. I just want to get through
4 this today. Isn't it five years of training?

5 A. I actually don't know.

6 Q. Okay. You don't know what it takes to become a
7 radiologist, nor are you one; correct?

8 A. Correct.

9 Q. Yet you are testifying and offering opinions with
10 certainty about what Calvin A.'s MRI and CT scans say, aren't
11 you?

12 A. Yes, sir.

13 Q. Okay. You're not board certified in child abuse by the
14 American Board of Pediatrics; correct?

15 A. That's right.

16 Q. And when you claim to be a forensic expert, I think that's
17 one of the things you testified earlier, that just means you
18 testify in court a lot; right?

19 A. I never said I was a forensic expert, and I don't even
20 know what that means.

21 Q. Okay. And you haven't held yourself out to be as such?

22 A. Again, I've never said that in court. Maybe somebody said
23 it about me and it slipped past me.

24 Q. Now, you're getting paid for your work in this case?

25 A. Hope so.

1 Q. Part of that fee includes your testimony today; right?

2 A. Yes, sir.

3 Q. You're paid by the hour?

4 A. Yes, sir.

5 Q. How much?

6 A. \$250 an hour.

7 Q. Okay. And how much do you anticipate being paid for your
8 work in this case?

9 A. For the day today, for example, I charge \$2,500. I had a
10 lot of meetings with Mr. Samore, and that's \$250 per hour. So
11 probably around \$5,000, maybe a little bit more.

12 Q. And how long did it take you to write your two-page report
13 in this case?

14 A. I don't recall.

15 Q. Okay. I note that you didn't have any medical literature
16 cited in your report, did you?

17 A. No, I did not.

18 Q. Now, when the United States asked for medical literature
19 to support your opinions, Mr. Samore filed something and wrote
20 about four articles that you submitted. Did you see that
21 submission to the Court?

22 A. I don't recall.

23 Q. Okay. Did you provide him with the four articles that he
24 tendered to the United States? Did you provide him with
25 medical literature?

1 A. Yes, sir.

2 Q. Okay, we're going to go over those in a minute.

3 You make more testifying around the country than you do in
4 your clinical practice; correct?

5 A. Not around the country. I make more from my forensic
6 practice, for my medical-legal practice, than I do from seeing
7 patients.

8 Q. What's your forensic practice?

9 A. Like I said, I'm basically traveling about two or three
10 days a month, and then the other times I'm reviewing forensic
11 cases and discussing them with attorneys, or writing reports.

12 Q. And that's why you call yourself a forensic expert?

13 A. But I don't.

14 Q. Okay. Your payment isn't contingent upon the outcome of
15 the case, is it, Doctor?

16 A. No, sir.

17 Q. In fact, many of the defendants in cases where you testify
18 get convicted, don't they?

19 A. Sure.

20 Q. How many hours have you spent on this case --

21 A. I don't know.

22 Q. -- do you know?

23 A. I don't know exactly. Like I said, today my charge for
24 the day is \$2,500. But I'd have to look in my files.

25 Q. Will you turn to Government's Exhibit 3, Dr. Scheller,

1 please?

2 A. Yes, sir.

3 Q. Now, this is your report that you submitted in this case;
4 correct?

5 A. Yes, sir.

6 Q. Was there anything that we didn't hear about or see today
7 that you wanted to add to your report in this case, including
8 the medical literature that you provided later?

9 A. There was something I mentioned today that I didn't
10 mention in my report, but it basically just confirms what I put
11 in the report.

12 Q. Okay. Now will you turn to Government's Exhibit 1, and
13 let me know when you're there.

14 A. I'm here.

15 Q. Dr. Scheller, this document, does it contain the medical
16 literature that you submitted only when the United States
17 requested it?

18 A. I'm looking at -- hold on. I'm sorry, I'm looking at the
19 thing before Page 1? Before Section 1, or in Section 1?

20 MR. NAYBACK: May I approach, Your Honor?

21 THE COURT: Yes. Just show him.

22 BY MR. NAYBACK:

23 Q. Dr. Scheller, you should be looking at
24 Government's Exhibit 1. That's an exhibit list. If you turn
25 the tab, see Government's Exhibit 1 there? Is there a tab on

1 the bottom that says Government's Exhibit 1?

2 The title of the document, and I apologize if it's not in
3 the correct order, Dr. Scheller, is "Mr. Duran's Response to
4 Motion in Limine."

5 A. Okay, got it.

6 Q. Is it past Tab 1, just so I'm clear?

7 A. Yes, sir.

8 Q. Okay. Have you ever seen this document before?

9 A. Yes, sir. Last night.

10 Q. You hadn't seen it before last night?

11 A. I may have. I don't recall.

12 Q. Will you turn to Page 2?

13 A. Sure.

14 Q. There's some medical literature cited there, Doctor. Is
15 this a document that you drafted for Mr. Samore to tender, or
16 is this something that Mr. Samore wrote, or do you know?

17 A. I definitely did not write it. So, he wrote it.

18 Q. When you read it last night, did it appear to be accurate?

19 A. I wasn't checking it for accuracy.

20 Q. Okay. This is the medical literature that you -- do you
21 recognize the titles of the four pieces of medical literature
22 there? If you'll take your time and look through it, I think
23 there's just four cites.

24 A. Yes, I only recognize the one from Dr. Lee mentioned in
25 Paragraph 5, and then the reference to Radiopaedia. If I gave

1 Mr. Samore the other ones, then I'm sure I have them.

2 Q. Now, medical literature is generally peer-reviewed, isn't
3 it?

4 A. Yes, sir.

5 Q. Tell us a little bit about Radiopaedia. Is that something
6 that you would consider a reliable scientific source, other
7 than for the reason that you contribute to it?

8 A. Radiopaedia is a reference for radiologists around the
9 world.

10 Q. It's not peer-reviewed, is it?

11 A. It's actually -- no, it's not peer-reviewed, but it is
12 edited.

13 Q. Is it safe to say that the Court can probably not consider
14 that as a peer-reviewed scientific journal?

15 A. I can't answer that.

16 Q. Will you turn to Government's Exhibit 4, and let me know
17 when you're there.

18 A. I'm here.

19 Q. Is this one of the pieces of literature that you submitted
20 to Mr. Samore to support your opinions in this case?

21 A. I don't recall.

22 Q. You don't -- so, did you -- Doctor, I'm just trying to be
23 clear. Did you get a request from the United States through
24 John Samore for medical literature that supports your opinions
25 in this case?

1 A. I think so.

2 Q. Okay. What's your understanding of a Daubert hearing?
3 I'm just going to back up a minute.

4 A. Well, to understand -- well, in this case, or in general?

5 Q. In this case, or in general, Doctor. What do you know?

6 A. Well, first I'll answer in this case. Do I have the
7 sufficient knowledge and background to present my findings in
8 Calvin A.'s case when the trial comes.

9 Q. Is it your understanding that it's just knowledge and
10 background, experience, that type of thing, or is it your
11 understanding that you need to have medical literature to
12 support your opinions?

13 A. Well, medical literature helps, but basically it's
14 knowledge and scientific background, that kind of thing.

15 Q. Okay. So in Government's Exhibit 4, I know you don't
16 recall, Doctor, but if this is one of the pieces of literature
17 that you submitted to support your opinion, do you see a date
18 on it?

19 A. 1972.

20 Q. That's before the advent of even MRIs, isn't it?

21 A. Yes, sir.

22 Q. What value would it have here today?

23 A. I don't recall why I sent this to him, so I'd have to take
24 the time to read it.

25 Q. That's all right, of course. And then

1 Government's Exhibit 5, tell me when you're there.

2 A. Yep, I'm here.

3 Q. This is an article you seem to recognize. Do you think
4 you sent this to Mr. Samore?

5 A. I mean, I refer to this article a lot, so it's very
6 possible.

7 Q. And isn't the term hygroma -- that's an antiquated term
8 that medical doctors don't really use anymore, is it?

9 A. Not my peers.

10 Q. Okay. Your peers in your private clinic?

11 A. My peers in neurology.

12 Q. And how often do you talk to your peers in neurology,
13 Doctor? You're not affiliated with a hospital, are you?

14 A. I'm not.

15 Q. Are you a solo practitioner?

16 A. Yes, sir.

17 Q. Okay. Turning to Government's Exhibit 6, this was also
18 cited by Mr. Samore. You don't recall sending this to him, do
19 you, Doctor?

20 A. I may have, I'm just not sure.

21 Q. And this is your Radiopaedia page that you're a
22 contributor to; right?

23 A. Yes, I probably did send it, because I don't know how else
24 he would find it.

25 Q. Okay. And then finally, Government's Exhibit 7, is this

1 something you sent to Mr. Samore?

2 A. I don't recall.

3 Q. All right, Dr. Scheller, I'm going to continue on, then.

4 The crux of your theory in this case is that John Doe had
5 an enlarged head; is that correct?

6 A. That's part of it, yeah. And I'm happy to refer to him as
7 John Doe, if that's what the Court prefers.

8 THE COURT: Let me ask counsel, how do you all want
9 to refer to the victim?

10 MR. NAYBACK: I don't mind Calvin. We can go through
11 and we can redact, Your Honor.

12 THE COURT: What if we just say the first name,
13 Calvin, is that --

14 MR. NAYBACK: Say that one more time; I'm sorry.

15 THE COURT: He's been referred to by his first name,
16 Calvin.

17 MR. NAYBACK: I think that's fine.

18 MR. SAMORE: That's okay.

19 THE COURT: Okay, we'll just refer to him as Calvin,
20 then.

21 BY MR. NAYBACK:

22 Q. Dr. Scheller, Exhibit 23. I'm sorry, you're going to have
23 to lift some paper there.

24 A. Yes, sir.

25 Q. Do you recognize that?

1 A. Yes, sir.

2 Q. Go ahead and tell me, and point out to the Court where you
3 see abnormal growth in Calvin's head size.

4 A. Well, I put it in my note, but --

5 Q. I'm sorry? I didn't hear the first part of what you just
6 said.

7 A. I put it in my note, where I put the percentiles. And
8 very often it's very difficult to get the percentile exactly
9 just right, so I would not be using this as my reference.

10 Q. Okay. Well, isn't it true that if a pediatrician were to
11 measure a child's head three times, it might come up with three
12 different measurements?

13 A. Inexperienced, yes, sir.

14 Q. But on this chart, then, Doctor, you don't see anything
15 that represents abnormal head growth? I mean, do you have any
16 reason to question Government's Exhibit 23 as Calvin A.'s head
17 growth chart?

18 A. I have no questions about it, no, sir.

19 Q. All right. Now, as a pediatrician, you've read head
20 growth charts before?

21 A. Yes, sir.

22 Q. And can you just show us, then, where you see abnormal
23 growth in Calvin A.'s head size?

24 A. Well, again, I didn't do this growth chart, but I see,
25 between four months of age and six months of age, there is a

1 jump from the approximate 50th percentile to the 75th
2 percentile.

3 Q. And at least part of your theory is that that jump could
4 be attributable to the bleeding on the brain that you talked
5 about in Calvin's head; correct?

6 A. Not at all. So I did not do a good job of explanation, if
7 that's how you understood it.

8 Q. Go ahead, Doctor. Do you want to explain?

9 A. Yes. So, I'm not referring to this particular chart,
10 because I didn't use this particular chart, the one that's in
11 the exhibit binder. I'm referring to the head growth chart the
12 way I measured it and put it in my report.

13 Q. I didn't see it in your report.

14 A. Okay. There's a percentile after each head growth
15 measurement.

16 Q. Well, what chart did you use, Doctor, to get to --

17 A. My report is in here; right?

18 Q. It is?

19 A. Do you know what binder number?

20 Q. Doctor, I do, and it's also in the Table of Contents, but
21 Dr. Scheller, I'm asking you, what chart? You said you
22 reviewed the medical records in this case; right?

23 A. Yes, sir.

24 Q. So it's Calvin's head growth chart, the chart that we're
25 looking at, where you must have gained your percentage from;

1 correct?

2 A. No, sir.

3 Q. Okay. Can you tell us what you reviewed prior to writing
4 your two-page report?

5 A. I put it in the note, and I wrote that I reviewed records
6 of birth, pediatric visits, ER visits, hospitalization and
7 follow-up, and the x-rays and brain imaging. And then as I
8 said before, I reviewed Dr. Plunkett's report, Dr. Jenny's two
9 reports, and there may be other things, as well.

10 Q. Did you interview your client over here?

11 A. He's not my client, so I can't answer that question.

12 Q. You can't talk to him?

13 A. He's not my client, so I can't answer the question. You
14 asked if I interviewed my client, and I didn't interview my
15 client because I don't have a client.

16 Q. Okay. And you didn't look at the FBI law enforcement
17 reports of your client's statements; right?

18 A. I don't recall.

19 Q. And you don't consider those as part of your analysis, do
20 you?

21 A. I'm not a police officer or an investigator, I'm a
22 physician, so I'm very comfortable reviewing medical reports
23 and less comfortable reviewing police reports. So I probably
24 did look at it, but what I considered most was the medical
25 records.

1 Q. Do you recall writing a chapter in a book about getting
2 the whole story as a physician?

3 A. It was actually a story for a magazine.

4 Q. Okay. Not quite peer-reviewed; right?

5 A. No, it wasn't a peer-reviewed magazine.

6 Q. So, Dr. Scheller, it appears that when you testify in the
7 past in other state court cases that you disregard what a
8 defendant said happened to the child before it had the medical
9 episode that brought them into the hospital; is that true?

10 A. I wouldn't use the term disregard. I'll say I regard more
11 the medical reports.

12 Q. Okay. So if Patrick Duran admitted to law enforcement
13 that he shook the baby or jerked the baby, that's not something
14 you would consider when you look at the medical reports and
15 come up with the opinion that this is definitely not abusive
16 head trauma, which is what you say in your report; correct?

17 A. Well, I don't think I used the word "definitely," but let
18 me make sure. I'm looking at Part 3 of the binder, and I
19 wrote -- I said: "There is no evidence that Calvin was a
20 victim of abusive head trauma." And so I did not consider that
21 evidence.

22 Q. You didn't consider the Defendant's statements to law
23 enforcement; correct?

24 A. As evidence that he was a victim of abusive head trauma.

25 Q. So other than head size, were you aware if the child,

1 Calvin, had any family history of abnormal brain bleeds or
2 anything like that? Did you see that in the history?

3 A. I'm sure it was referenced to, but it's not something I
4 put in the report, so I don't specifically remember.

5 Q. would it surprise you to learn that two other doctors who
6 reviewed the charts in this case found John Doe's head size was
7 on par with the rest of his body growth?

8 A. There can be differences of opinion. I'm fine with that.

9 Q. But that's the crux of your theory, isn't it, Doctor? I
10 mean, you're here testifying, and the starting point of your
11 medical opinion is that he had abnormal head growth, isn't it?

12 A. That's half of it.

13 Q. What's the other half, Doctor?

14 A. The other half is that you could actually see the fluid
15 collection.

16 Q. We'll get to that.

17 A. So if you can see it and you know that fluid collections
18 don't develop overnight, then you have to say, well, where did
19 that come from? You look at the head growth and you go, okay,
20 that explains why the head grew.

21 Q. would it surprise you to learn that the two doctors and
22 the radiologist in the courtroom today disagree with you about
23 how you're reading the MRI and the CT scans?

24 A. Oh, not at all.

25 Q. You're fine with that; right?

1 A. Sure.

2 Q. You're providing an alternative explanation to what the
3 evidence points to otherwise; correct?

4 A. Or maybe they're providing the alternative explanation. I
5 mean, I guess that's for the Court to decide.

6 Q. You don't have any scientific studies to support, at least
7 that you brought here today or that you recall, Dr. Scheller,
8 that that percentage jump in head growth will lead to the
9 medical diagnosis that you just made?

10 A. Well, just my clinical experience.

11 Q. Okay, let's talk about retinal hemorrhages. You published
12 a short little article on that, didn't you, Dr. Scheller?

13 A. Yes, sir. More than one.

14 Q. Can I approach you with one?

15 MR. NAYBACK: May I approach, Your Honor?

16 THE COURT: You may.

17 MR. NAYBACK: This is Government's 25. I'm sorry,
18 it's not in the binder. Can I approach the Court?

19 THE COURT: Yes.

20 BY MR. NAYBACK:

21 Q. Can you tell me how you came to prepare this short note,
22 Doctor?

23 A. These are people I know and I spent some time with them.

24 Q. And you stand behind the article?

25 A. I didn't write every word of it, and there were some

1 wording issues, but it is what it is.

2 Q. Okay. On Page 465, which is the back side of
3 Government's Exhibit 25, Doctor, in the right-hand column, the
4 statement is made: "Rarely, retinal hemorrhages may occur in
5 accidental trauma and, when present, are predominantly
6 unilateral." Is that a statement you stand behind?

7 A. I guess in a generalized kind of way, yes.

8 Q. And would you agree -- I know you don't agree with the
9 idea of abusive head trauma, but that retinal hemorrhaging can
10 present in children who have either been shaken or have had
11 blunt impact?

12 A. I got stuck in the first part of the question, because you
13 misrepresented what I had said earlier. So can you say the
14 question again without any misrepresentations? I'd appreciate
15 that.

16 Q. Well, Doctor, listen, I'm just asking you questions. Feel
17 free to rephrase my question and then answer it. I don't want
18 to mischaracterize any of the stuff you've said in the last few
19 hours. Okay?

20 A. Okay.

21 Q. Well, let me ask you this: Do you have a medical opinion
22 about whether children who are shaken can present with retinal
23 hemorrhaging?

24 A. So, children means five and ten year olds, or are we
25 talking about a specific subgroup, or what?

1 Q. Eight month olds. Under a year.

2 A. I have no idea.

3 Q. Okay. How about the age groups that you gave,

4 Dr. Scheller, ages one to five?

5 A. Similarly, I have no idea.

6 Q. Have you seen children in your private clinic that you

7 suspected of abusive head trauma, that have suffered from

8 abusive head trauma?

9 A. No, not in my private office.

10 Q. Okay. Is there another location where you had exposure to

11 children who were suspected of having abusive head trauma?

12 A. Sure. All the children's hospitals where I worked.

13 Q. But I think you testified earlier, you never sat on a

14 child abuse response team?

15 A. Right. But if it's a head injury, then a neurologist is

16 called for consultation.

17 Q. So you're the consulting doctor? You're not the primary;

18 correct?

19 A. Like the child abuse doctor, I'm not the primary.

20 Q. Now I want to turn to a few of the cases that you've

21 testified about in the past, with the Court's indulgence. Can

22 you turn to Government's Exhibit 10, Dr. Scheller?

23 A. Sure.

24 Q. I might bounce around a little bit.

25 A. Yes, sir.

1 Q. Do you recall testifying in Massachusetts on April 22nd --
2 well, about 2015. This is the date of the entry of the Court's
3 order. But do you recall Epps?

4 A. I do.

5 Q. Okay. And if you'll turn to Page --

6 THE COURT: What exhibit are you on?

7 MR. NAYBACK: I'm sorry. Thank you, Your Honor.

8 Exhibit 10.

9 BY MR. NAYBACK:

10 Q. And Dr. Scheller, if you'll turn to Page 2 of 3.

11 A. Page 2 of 3, yes, sir.

12 Q. I'm going to read that top right paragraph and ask you to
13 follow along. It says: "The judge, who found Dr. Scheller's
14 position 'absurd' on the basis of, among other things, his
15 testimony that he (1) believed 'child abuse pediatricians are
16 such good marketers'; (2) believed 'abusive head trauma [is] a
17 great PR term [which] doesn't mean anything'; (3) disregards
18 confessions in which individuals admit to having shaken a baby
19 or child; and (4) believed regular people do not violently
20 shake a child out of frustration, could properly assess
21 credibility."

22 Did I read that correctly?

23 A. Yes, sir.

24 Q. Do you consider these credibility findings made against
25 you?

1 A. I don't know understand the question.

2 Q. Do you understand what a credibility finding is?

3 A. Well, I'm not a lawyer, but I guess the issue is, am I
4 credible or not.

5 Q. Do you take exception to what the Court wrote here,
6 Dr. Scheller?

7 A. The Court, itself, took exception and reversed the
8 findings of the lower Court.

9 Q. And then let's turn to Government's 14 -- well, let's
10 pass. Government's 11 --

11 MR. SAMORE: Excuse me for just voicing an objection,
12 Mr. Nayback, if I may.

13 Judge, that decision that the Government cited did
14 not include the higher court decision which admitted all of
15 Dr. Scheller's opinions. I'm having that printed up this
16 morning, and I'll bring it for the Court and the Government.

17 THE COURT: You can supplement the record.

18 MR. SAMORE: Very good. Thank you.

19 BY MR. NAYBACK:

20 Q. Government's 11, Dr. Scheller, do you recall testifying
21 in -- and I don't know if I'm saying the name right -- Sissoko
22 v. State? That's in your home state, isn't it?

23 A. It is, and I think this was a Daubert hearing.

24 Q. I'll leave that to you, Doctor. Page 10 of 25, is this
25 another case where it's been somehow overturned, or do you

1 know, Dr. Scheller?

2 THE COURT: I'm sorry, I'm at People v. Goins.

3 MR. NAYBACK: I'm sorry, I think I passed that one,
4 Your Honor. Government's Exhibit 11. We covered Goins
5 earlier.

6 THE COURT: I'm there.

7 BY MR. NAYBACK:

8 Q. And then, Dr. Scheller, Page 10 of 25.

9 A. Yes, sir.

10 Q. I'm on the third paragraph down, if you'll read along with
11 me. "The Court stated that it was not persuaded by the
12 testimony of the defense medical experts. It found that they
13 displayed significant bias in that they were advocates for a
14 change in the prevailing view in the medical community that
15 abusive head trauma is an accepted diagnosis. In addition, the
16 opinions of the defense experts were 'not well founded in the
17 medical literature.'"

18 Did I read that right, Dr. Scheller?

19 A. You did.

20 Q. And you didn't have any medical literature that you cited
21 to today in support of your opinions, did you?

22 A. Just that -- well, you mentioned four articles, which
23 might have been, but then I had specifically remembered sending
24 Mr. Samore the Dr. Lee article.

25 Q. Doctor, do you think that's enough to get past Daubert?

1 You didn't seem to remember the articles that I was showing
2 you.

3 A. I'm not an attorney or a judge.

4 Q. Government's 15. And let me know when you're there,
5 Dr. Scheller.

6 A. Yep.

7 Q. Do you recall acknowledging in that case that your
8 rejection of rapid acceleration/deceleration as causation for
9 such injuries is a view that is shared by only five percent of
10 the relevant medical professionals, "and that puts him at odds
11 with the views of organizations"?

12 A. It sounds right.

13 Q. Okay, thank you. And then I'm going to
14 Government's Exhibit 13. Do you recall admitting that you're
15 not board certified in child abuse and do not consider yourself
16 a child abuse expert? I think you said that earlier, Doctor;
17 correct?

18 A. Yes. And if it's in here, I'm so happy I'm consistent.

19 Q. And then this is the final case, and then I'll leave it,
20 Doctor, as far as the cases go. One minute.

21 Government's Exhibit 9 -- let me see if I can get there.
22 Do you remember the opposing doctor, Dr. Scheller? His name
23 was Dr. DiLuna.

24 A. I don't.

25 Q. Page 13 of 32, if you'll turn there, and let me know when

1 you're there.

2 A. Yep.

3 Q. I'm reading that first full paragraph. "Dr. DiLuna
4 completely disagreed with this finding and further claimed that
5 it did not make any sense. First of all, there was no medical
6 record or testing that demonstrated Avah had subdural hygroma.
7 He stated that Dr. Scheller was clumping together medical terms
8 that don't exist."

9 Did I read that right?

10 A. Yes, sir.

11 Q. Now, you never examined Calvin in this case, did you,
12 Doctor?

13 A. No, sir.

14 Q. Never interviewed his mother?

15 A. No, sir.

16 Q. You never reached out to Dr. Leslie Strickler to talk to
17 her about her report or findings?

18 A. That's right.

19 Q. Dr. Jenny, equally?

20 A. That's right.

21 Q. And the radiologist in this case that -- you've talked a
22 lot about medical imaging this morning. You didn't talk to the
23 radiologist about his findings in the case; correct?

24 A. I did not.

25 MR. NAYBACK: Court's indulgence.

1 THE COURT: Sure.

2 BY MR. NAYBACK:

3 Q. Dr. Scheller, you shared a bunch of images this morning so
4 the Court could understand, presumably, your knowledge of
5 neuroimaging, did you not?

6 A. Well, I did it to educate the Court about the findings in
7 Calvin's case. If it made another impression, I'm happy about
8 that.

9 Q. It appeared to me that there were a host of HIPAA
10 violations on the computer screen in a public setting. There
11 were the names, patient ID numbers, patient records of the
12 patients who were associated with those images. Did you have
13 the permission of those patients or their parents prior to
14 using their images?

15 A. I don't understand the question. These were anonymous.
16 These were anonymous images. There were no names on them.

17 Q. Would it surprise you to learn that the doctors looking at
18 the images saw names, medical records, birthdates?

19 A. I get hallucinations sometimes, myself.

20 Q. Now, tell me again what you think caused Calvin's brain
21 bleed.

22 A. Is it all right if I refer to my letter, my report?

23 Q. Of course, Doctor, whatever you need to refer to.

24 A. I know sometimes in courts they don't like it when I read
25 from something, and then other times they don't seem to mind

1 it. But I'm looking at the report which is in Part 3 of the
2 exhibit binder. What I stated there was that I believe that
3 Calvin had seizures from --

4 Q. Let me stop you, Doctor. There's no real dispute about
5 the seizures; right?

6 A. Actually, I'm not sure about that.

7 Q. Do you know how many he had?

8 A. No, sir.

9 Q. Okay. Go ahead.

10 A. Anyway, I wrote that Calvin had seizures. I believe the
11 seizures were due to a small amount of blood that were on the
12 surface of his brain that came as a complication of Calvin
13 having a chronic condition called a subdural hygroma. While
14 these are often benign, usually benign, they can cause
15 complications. Simply put, Calvin had a complication from that
16 subdural hygroma that then caused a small subdural hemorrhage
17 and a very small subarachnoid hemorrhage.

18 Finally, his retinal hemorrhages were not at all due to
19 any kind of trauma or violent shaking, but rather were due to
20 the complications that were going on on the surface of the
21 brain.

22 Q. And there is no medical literature or scientific studies
23 to support your opinions; correct?

24 A. Well, as far as the retinal hemorrhages, I'll use my own
25 paper, which you didn't quote, but is on my CV that I published

1 in 2017 about how retinal hemorrhages can develop without any
2 evidence of brain trauma at all, and also my experience and
3 background in diagnosing retinal hemorrhages in children who
4 have not suffered any brain trauma.

5 MR. NAYBACK: Court's indulgence.

6 BY MR. NAYBACK:

7 Q. Doctor, you kind of brought up that people were seeing
8 things. Do you want to bring up those images, again, that you
9 were using to educate us?

10 A. Sure. So which ones, specifically?

11 Q. Let's do five of the ten.

12 A. I didn't understand that.

13 Q. Go ahead with the first image, Doctor. We're not going to
14 ask you about the medicine behind it, I just want to make sure
15 I wasn't seeing things.

16 A. So, I showed these images. Everybody can see them, I
17 assume. These are the ones that they --

18 Q. Yes. Can you go backwards?

19 A. Sure.

20 Q. This is Calvin A.'s; correct, Doctor?

21 A. Correct. And it's highlighted.

22 Q. I'm looking at the exemplars of other images that you
23 brought up.

24 A. I didn't show any of those. I showed the ones that have
25 generic titles like Acute Subdural Hematoma and Three Month

1 Coronal T1. I showed this set, which is highlighted in blue,
2 and I showed this set, which is highlighted in blue.

3 Q. If you'll look in that left column where your cursor is,
4 Martinez Nava Dante Jesus, that's someone anonymous?

5 A. Oh, no, that's a real person.

6 Q. Okay. Patient ID numbers; correct, Doctor?

7 A. Yes, sir.

8 Q. Is the age up there?

9 A. Not really.

10 Q. There's a column that says, Age, Doctor. Do you see it?

11 A. Yes, but it's between five years and six months, so that's
12 not really an age.

13 Q. But it would help cross-reference the name of the person
14 with their age; correct?

15 A. If that's what you choose to do, yes, sir.

16 Q. Can we go back one more image, Doctor?

17 A. I'm not sure what you mean.

18 Q. You were showing us images in order, and I was wondering,
19 were you just picking and choosing around your medical computer
20 there?

21 A. I'm sorry, I don't understand. I showed images on Calvin,
22 and then I showed generic images of subdural hematoma and what
23 a brain looks like without a subdural hygroma, and then I
24 showed Radiopaedia images.

25 MR. NAYBACK: Thank you, Your Honor.

1 THE COURT: Is there redirect?

2 MR. SAMORE: Yes, Your Honor.

3 REDIRECT EXAMINATION

4 BY MR. SAMORE:

5 Q. Doctor, the first question I'm going to ask you is to turn
6 to Exhibit 22 in the folder before you. Does that include
7 Dr. Jenny's report from prior to your being contacted to review
8 these records?

9 A. Yes, sir. I'm looking at Exhibit 22, and it's a
10 13-page report from Dr. Jenny.

11 Q. And you did review that prior to developing your report,
12 didn't you?

13 A. Yes, sir.

14 Q. Turning your attention to Page 6, does that include three
15 full paragraphs describing what the statements -- or at least
16 representing to describe Mr. Duran's interview and reasons that
17 the Government may believe that he is responsible for this
18 child's injuries?

19 A. Yes, sir.

20 Q. Did you also read in the medical records that included
21 Dr. Strickler's findings back in September and October of 2014,
22 did she also reference her understanding of what Mr. Duran had
23 represented and why he was being investigated for abuse?

24 A. Yes, sir.

25 Q. And turning your attention to Page 10 and Paragraph 8 of

1 Exhibit 22 --

2 MR. NAYBACK: Did you say 8 and 10?

3 MR. SAMORE: Page 10, Paragraph 8.

4 BY MR. SAMORE:

5 Q. Does that appear to be a conclusion from Dr. Jenny?

6 A. Yes, it does. It regards the rapid head growth between
7 four months and six months.

8 Q. And does she appear to find that there was rapid head
9 growth during that time period?

10 A. Yes, sir.

11 Q. Did she also attach a diagram -- I think that was from
12 Dr. Jenny -- that's marked Exhibit 23? I'm not sure if that's
13 from Dr. Jenny. I just know that there was a diagram that was
14 disclosed. Do you see that Exhibit 23?

15 A. Yes. This is what the other, Mr. Kyle -- I forgot his
16 last name -- referred to earlier.

17 Q. All right. Now, another question that the Government
18 asked in cross-examination was regarding -- and I'm going to
19 paraphrase slightly, so don't let me put words into
20 Mr. Nayback's mouth or yours. But it was regarding the medical
21 literature, peer-reviewed documents, methodology, etc., that is
22 behind your and underlies your opinions. Do you recall that
23 sequence of questions?

24 A. Yes, sir.

25 Q. Now, correct me if I'm wrong. I think on direct

1 examination, you referred to your primary basis being training
2 and experience.

3 A. Yes, sir.

4 Q. Are you current, and are you aware of medical literature
5 that fully describes and identifies in peer-reviewed documents
6 the substantive basis for diagnosing hygromas, subdural
7 hematomas, subacute and acute hematomas, and retinal
8 hemorrhaging?

9 MR. NAYBACK: Objection, Your Honor. The United
10 States has asked for this information well in advance of this
11 hearing. You just heard Dr. Scheller testify that he was
12 unaware of two of the four articles that Mr. Samore provided to
13 the United States. I don't think Dr. Scheller ought to now, on
14 the day of the Daubert hearing, reference literature unknown to
15 the United States that allegedly supports his position. That's
16 my objection.

17 THE COURT: What's your response, Mr. Samore?

18 MR. SAMORE: My response, Judge, is that it appears
19 that the Government's position is that unless you're a CART
20 doctor and you have a CART reviewed document, that's about all
21 that counts.

22 Dr. Scheller has an active and has maintained an
23 active private practice, as well as his forensic practice, and
24 these opinions are so foundational that I don't think I had any
25 understanding, certainly, in the request that we had to go back

1 to what you do when you're in medical school or doing standard
2 peer-reviewed documents. I mean, it's beyond the most basic.
3 I was trying not to burden this Court either now or apparently
4 with what we're hearing the Government argue with this abundant
5 primary substantive medical literature.

6 Doctors -- and this may be a good point for us to
7 kind of address this briefly. The issue that we are having
8 from the defense standpoint and the Government is that, in our
9 understanding, Dr. Scheller never says AHT doesn't occur, it's
10 not possible, or SBS doesn't occur. He is not diagnosing it as
11 a child abuse specialist, like Dr. Strickler or Dr. Jenny. He
12 is diagnosing it from his professional position as a qualified
13 child neurologist.

14 So the Government wants, as their questioning clearly
15 shows, they want to hear nothing but CART people and CART
16 references, and there is a wealth of information about that
17 that I hardly thought was necessary here, and certainly we can
18 supplement the record with that. But they're asking the most
19 basic --

20 THE COURT: well, the point is, though -- I mean,
21 we've gone to great lengths to schedule this hearing today, and
22 again, just assume for purposes of argument that you get the
23 doctor qualified to render an opinion, a major part of the
24 Daubert focuses on reliability. That's what the Government is
25 focusing on, and part of that is peer review.

1 I mean, I remember Judge Hartz's -- I can't remember
2 whether it was a majority or a dissent, but it was on a Daubert
3 case where he talks about the courtroom does not lead science.
4 You don't make up novel or new theories in a courtroom in a
5 Daubert case.

6 So if they had asked for this literature, to the
7 extent it's there -- you provided the four articles, we've gone
8 over that, but I think at this point the objection is
9 sustained. We need to move on.

10 BY MR. SAMORE:

11 Q. I think one of your answers to Mr. Nayback's question
12 was -- I think the phrase that you used was, or I think the
13 question was whether shaking can produce, and I think it was a
14 head injury, and I think your answer -- and again, I'm
15 paraphrasing. I'm trying to get back to that point. Your
16 answer was, no idea. Could you elaborate on that answer as it
17 applies to evidence?

18 A. Yes. The way I remember the question was that he was
19 asking, can shaking, violent shaking of an infant, produce
20 retinal hemorrhages, and my answer was, I have no idea. And I
21 have no idea for several reasons, and I'm happy to elaborate.
22 Is that what you want me to do?

23 Q. Just, if you can, describe what the issue is as you see it
24 regarding the diagnosis and proof of cause.

25 A. Sure. So in the laboratory, they've shaken laboratory

1 animals without producing retinal hemorrhages. So that doesn't
2 prove that violent shaking can produce retinal hemorrhages.

3 There are witnessed violent shakings using Nanny cams, and
4 none of them have ever been documented to show retinal
5 hemorrhages, violent shakings that have been observed on Nanny
6 cams. In other words, surreptitious video of a baby-sitter
7 that turned out to be a violent person. So those have never
8 produced it. So that's not a line of evidence.

9 The only evidentiary support that is produced in the child
10 abuse world and in the ophthalmology world is confessions.
11 So, they find retinal hemorrhages and they have a confession,
12 and then they say, well, that's proof. To me, that's not
13 scientific proof. That might be another kind of proof, but
14 it's not scientific proof. There is no scientific literature
15 that shows that violent shaking of a young infant can produce
16 retinal hemorrhaging.

17 Q. Have there been efforts to try to develop physical models
18 and to use those to measure or to establish whether shaking can
19 cause all the triad of injuries, that shaking alone can cause
20 the triad of injuries without impact?

21 A. Yes, sir.

22 Q. Have there been problems developing those models?

23 A. Yes, and the problems were noted back in 1987 in a
24 publication by Dr. Duhaime where she concluded that her
25 laboratory could not find evidence that the forces needed to

1 create subdural hemorrhage were generated in a violent shaking
2 of a model.

3 Q. And did Dr. Jenny, herself, write recently in a paper that
4 was associated with some folks in Japan where they took an
5 infant model at the 5th percentile and a 50th percentile
6 Japanese person and tried to create a testing model for shaken
7 baby injuries?

8 A. Yes, sir.

9 Q. Did they have problems, and did they acknowledged that in
10 that article?

11 A. They had problems creating the forces that are needed
12 to -- that are thought to be needed to produce the symptoms in
13 that model.

14 Q. And does Dr. Jenny in her reports that are a part of this
15 record, and also in her writing, acknowledge that further study
16 is needed to determine what forces are necessary?

17 A. Yes, sir.

18 Q. Did the Cory study have problems because there was no
19 controls on whether the model's head was hitting the chest as
20 it bounced back and you could not measure the forces easily?

21 MR. NAYBACK: Your Honor, I'm going to object to
22 leading. This expert should be able to handle explanations on
23 his own. Secondly, they're referencing a study in a vacuum.
24 Mr. Samore doesn't have it. Dr. Scheller doesn't have it. The
25 United States doesn't have it.

1 THE COURT: The objection is sustained.

2 MR. SAMORE: Judge, these are not surprise questions
3 to the Government. These are articles and commentaries that
4 we --

5 THE COURT: Yes, but I've got to make a ruling on
6 this, Mr. Samore, and you're talking about articles or studies
7 that are not in the record. Now, if we have to supplement, I
8 mean, that's something we can talk about, but just to sit here
9 and throw this out at a Daubert hearing at this point, I think
10 the Government's got a good point. That's their objection.

11 MR. SAMORE: That's more efficient, Judge. That's
12 what we'll discuss, then, because there's another study I
13 wanted to address. But I'm not going to do that based on the
14 Court's suggestion there.

15 BY MR. SAMORE:

16 Q. In your experience, are only CART doctors permitted to
17 diagnose, or qualified to diagnose whether or not child abuse
18 has occurred with a given constellation of injuries?

19 A. No, sir.

20 Q. And at risk of possibly repeating that question, do you
21 diagnose these, as best possible from the source of the
22 measurable injuries, whether or not child abuse may have
23 occurred in your daily practice?

24 A. Well, because I'm a pediatrician, all pediatricians are
25 trained in recognizing and diagnosing child abuse. I finished

1 my pediatric training in -- I got my board certification in
2 1987, and child abuse became a specialty maybe about ten years
3 ago or so. So until that time, it was just regular
4 pediatricians diagnosing child abuse. So in my background as a
5 pediatrician, I'm comfortable recognizing the findings of child
6 abuse and sometimes making that diagnosis.

7 Q. Are you saying in your testimony that Dr. Jenny or
8 Dr. Strickler are not qualified to render a diagnosis in their
9 judgment of what may be child abuse?

10 A. No. That's their specialty.

11 MR. SAMORE: There's just one other question, Judge,
12 that was raised, and I think the best way to handle that would
13 be by moving to supplement the record, Judge. I'm not going to
14 ask that question now. Thank you very much.

15 THE COURT: All right. Thank you, Doctor. You may
16 step down.

17 MR. SAMORE: Judge, I may ask at a later point to
18 re-call, but I'm just going to say I think based on the Court's
19 ruling, that's all we can really ask at this time.

20 THE COURT: I don't think we're going to be
21 re-calling today.

22 MR. SAMORE: That is true, Judge.

23 THE COURT: Let's do this. Because we're on a tight
24 time schedule today, let's try to resume -- let's take a short
25 abbreviated break for lunch, and then let's try to resume

1 around 10 after 12:00.

2 MR. NAYBACK: Can I ask a quick question, Your Honor,
3 logistically?

4 THE COURT: Sure.

5 MR. NAYBACK: I don't want to put anyone in a
6 position where we're halfway through a witness at the end of
7 the day. We have Dr. Hart, who is a radiologist, that we think
8 may take ninety minutes to two hours. I think Mr. Garcia or
9 yourself told me that we're ending at 2:30. If we start a
10 witness and end up at about quarter to 2:00 or 2:00, is that
11 going to be sufficient, or are you going to require the
12 Government to start a witness and --

13 THE COURT: No, I'd say if we're close to 2:00 and
14 it's a matter of starting another witness -- but Dr. Jenny
15 traveled in from Seattle; right?

16 MR. NAYBACK: Yes. But she's a long witness, and
17 Dr. Hart can't make it on the 13th and Dr. Jenny can. So we're
18 all about saving Government resources.

19 THE COURT: Okay, I'll let you decide, just with that
20 understanding. And I explained to you the situation, but I do
21 have to adjourn at 2:30.

22 MR. NAYBACK: Yes, sir.

23 THE COURT: All right, thank you. We're in recess
24 for lunch.

25 (Recess was held at 11:23 A.M.)

1 (In Open Court at 12:14 P.M.).

2 THE COURT: Mr. Nayback, you may call the next
3 witness.

4 MR. NAYBACK: Thank you, Your Honor. I'm going to
5 turn that over to Mr. Marshall. But before we do so, there
6 seemed to be some lack of clarity this morning on my part.

7 At this point, we're going to move the United States
8 Government's exhibit list and binder of exhibits into evidence.
9 And secondly, we want to request Dr. Scheller's demonstrative
10 exhibits be made a part of the record with copies provided to
11 the Government. And if they cannot be, we would submit that
12 the Court should either exclude them -- that the Court should
13 exclude them and disregard them. Thank you.

14 THE COURT: First, is there an objection, for
15 purposes of this hearing, to the exhibits in this binder coming
16 in?

17 MR. SAMORE: Judge, I don't think the cases can come
18 into evidence. I mean, that's something you use for --

19 THE COURT: Well, I'll take judicial notice.

20 MR. SAMORE: Yes. I mean, due to the nature of the
21 proceeding, we kind of had a little more relaxed approach to
22 that. I think with that understanding, sure, we're using it,
23 they're marked for identification. But each case is
24 individual, and we don't believe they have a great deal of
25 relevance except as to this case. But we'll defer to the Court

1 as far as that final ruling on how it considers those exhibits.

2 MR. NAYBACK: If I could briefly respond, the United
3 States would submit that cases where Dr. Scheller has testified
4 and Court findings have been made against him are appropriately
5 before the Court today. His credibility and what he has said
6 in the past is on the line. If we were to bring court
7 transcripts, we would also ask that those -- and we probably
8 will at trial -- that those be made a part of the record.

9 THE COURT: I'm going to admit -- I mean, I could
10 take judicial notice of them since they're court, but I think
11 for purposes of this record and making it clear, I'm going to
12 admit, and then I'm going to allow you to supplement the one
13 case out of Massachusetts.

14 MR. SAMORE: I have, Judge. It's Exhibit D. And I
15 didn't until Friday of last week, even, receive these
16 documents. If the Court is going to admit those, then we're
17 going to be having to spend some time digging out all the cases
18 where his testimony was admitted, just as in Exhibit D.

19 THE COURT: well, that's fine. If there's other
20 cases, you can supplement the record.

21 MR. SAMORE: Very good.

22 MR. NAYBACK: And then, Dr. Scheller's exhibits.

23 THE COURT: what's your position on that?

24 MR. NAYBACK: We're asking Dr. Scheller's exhibits to
25 be made a part of the record and for us to have copies of them,

1 what he showed this morning off his computer.

2 MR. SAMORE: You mean, the other case files for
3 demonstrative?

4 MR. NAYBACK: That's what I mean.

5 MR. SAMORE: May I just take a moment and go back and
6 speak to Dr. Scheller and see if we can provide them?

7 THE COURT: Sure.

8 MR. SAMORE: So, we will provide those, Judge, and we
9 will redact them so there's no names.

10 THE COURT: All right, that's fine.

11 DR. SCHELLER: You don't need Radiopaedia, do you?

12 MR. NAYBACK: No. We actually -- you know, there was
13 an issue, Your Honor, and I don't mean to be trivial about
14 this, but the way Dr. Scheller posted them on the screen is the
15 way we want them, and the way he posted them was with the
16 identifiers of the individuals. He made an issue of it,
17 Mr. Samore made an issue of it, and we think that's important.

18 THE COURT: Well, they can be sealed. They can be in
19 a sealed exhibit. But as far as the -- if some of the photos
20 or some of the images came from what I understood to be a
21 website that would be accessible by anybody -- is that right?

22 MR. SAMORE: Judge, some of those were. I think --
23 apparently some of the images that went up accidentally had the
24 identifiers. So what I think -- and I do have no objection to
25 providing them under seal for the parties and for the other

1 doctors.

2 what I think is happening here is that the Government
3 and its doctors are hopeful that they can make some big
4 presentation to challenge the ethics of Dr. Scheller and maybe
5 get him in trouble with his state medical board.

6 THE COURT: You know, that's not my concern. My
7 concern is to make sure this record is fully developed in the
8 event it goes up to the Court of Appeals, because as a trial
9 judge, I don't like cases coming back. So, this matter was
10 presented during the hearing, I saw it, counsel saw it, so it
11 needs to be part of the record, if you want me to consider it.
12 And those parts we talked about can be sealed so they're not
13 available for public view.

14 MR. SAMORE: We'll provide them.

15 THE COURT: And then if you would, make sure that the
16 record indicates that website where some of the images can be
17 accessed, because I took it or I understood the testimony to be
18 that it was a general website.

19 (Government Exhibits Nos. 1 through 24 admitted.)

20 THE COURT: So with that, let's go ahead and hear the
21 next witness.

22 MR. MARSHALL: Your Honor, the United States calls
23 Dr. Blaine Hart.

24 MR. GARCIA: Please raise your right hand, sir.

25 (BLAINE HART, M.D., GOVERNMENT WITNESS, SWORN)

1 MR. GARCIA: Please have a seat and state your full
2 name for the record.

3 THE WITNESS: Blaine Lawrence Hart.

4 DIRECT EXAMINATION

5 BY MR. MARSHALL:

6 Q. What is your profession, sir?

7 A. I'm a physician. I'm a neuroradiologist at the University
8 of New Mexico.

9 Q. Let's kind of unpack that a little bit. Where did you go
10 to medical school?

11 A. Vanderbilt University.

12 Q. When did you graduate?

13 A. 1981.

14 Q. And then after that, did you do a fellowship?

15 A. I did an internship, a one-year internship at the Naval
16 Medical Hospital in Portsmouth, Virginia, and then I spent four
17 years serving in the Navy as a physician, a medical officer. I
18 did some training, and then worked at Bethesda at the Naval
19 Medical Research Institute for three-and-a-half years. After
20 that, I did a residency at the University of New Mexico in
21 diagnostic radiology for four years.

22 Q. Are you board certified?

23 A. Yes.

24 Q. In what fields?

25 A. In diagnostic radiology, and then additionally

1 subspecialty certification in neuroradiology.

2 Q. And through which organization?

3 A. Through the American Board of Radiology, which is
4 recognized by the American Board of Medical Specialties to
5 examine in those fields.

6 Q. When someone traditionally says they're board certified,
7 is that the organization that people think of that does those
8 board certifications?

9 A. Yes.

10 Q. Where are you licensed to practice?

11 A. In New Mexico and Utah.

12 Q. And so what would you consider your specialty to be?

13 A. At this point, neuroradiology. That's all I've done for
14 many years.

15 Q. How long have you been a neuroradiologist?

16 A. Twenty-eight years.

17 Q. At some point, did you take on leadership positions at the
18 University of New Mexico?

19 A. I was the Section Chief for the Neuroradiology section for
20 quite a few years, and also served as the Fellowship Program
21 Director for an accredited neuroradiology fellowship.

22 Q. What about with regard to pediatric neuroimaging?

23 A. It's been an interest of mine for many years, and I for
24 quite a while took the lead in that at the University. It's
25 something that I've attended meetings on, kept up with. So

1 it's an area of special expertise.

2 I have not done a dedicated pediatric neuroradiology
3 fellowship. There are few of those around the country. But my
4 pediatric -- sorry. My neuroradiology fellowship -- all
5 accredited neuroradiology fellowships are required to have a
6 substantial amount of pediatric training, as well.

7 Q. What is your current relationship with the University of
8 New Mexico?

9 A. I'm now professor emeritus. In 2015, I retired
10 officially. Since that time, I've continued to go to work on a
11 25 percent basis. So I'm still a faculty member, an emeritus
12 faculty member working.

13 Q. Have you published in the field of neuroradiology?

14 A. Yes.

15 Q. Can you give an approximate number of publications?

16 A. I think the last time I looked at my CV, I had 95
17 publications, peer-reviewed publications.

18 Q. Have you been a part of any major research projects during
19 your tenure at the University of New Mexico?

20 A. I've been involved with a number of research projects. I
21 did a number of projects looking at cervical spine trauma in
22 the 1990s. I did some projects dealing with child abuse. I
23 had a project dealing with child abuse along with the Office of
24 the Medical Investigator in the '90s. For the last ten years,
25 I've been involved in an NIH sponsored study looking at

1 cerebral cavernous malformations, which is a type of vascular
2 malformation of the brain that's particularly common in
3 New Mexico.

4 Q. For both publications and research, have you done any that
5 have focused on pediatric or child abuse, either publications
6 or research?

7 A. I did a project with the Office of the Medical
8 Investigator where we looked at postmortem -- that is, after
9 death -- MRIs of children where child abuse was suspected. We
10 did postmortem imaging. That is, after death, but before
11 autopsy. And then the findings were correlated with the
12 autopsy findings. We published that. It was actually one of
13 only two articles I think I've had where they simply accepted
14 it without asking for revisions, and it was in a forensic
15 journal. American Journal of Forensic Medicine. I may not
16 have the title exactly right. It was presented at a meeting
17 where it was very well received, and I also wrote a chapter on
18 things relating to that in a book on forensic radiology.

19 Q. Your CV is a part of what's already been admitted as
20 Exhibit 21, but in it there's also a list of many different
21 lectures that you've given.

22 A. Yes.

23 Q. Do any of those deal with child abuse?

24 A. I have done some, yes.

25 Q. Have you testified before in court?

1 A. A number of times.

2 Q. Do you know -- sorry. Were you qualified as an expert
3 those times that you testified?

4 A. Yes.

5 Q. And in what areas were you qualified as an expert?

6 A. In neuroradiology. A number of those -- well, I testified
7 in a number of child abuse cases in state district court,
8 several district courts around the state, and I have served
9 sometimes, not a lot of times, but a number of times over the
10 years as a medical-legal consultant in malpractice cases. So,
11 I was admitted as an expert relating to neuroradiology.

12 MR. MARSHALL: Your Honor, at this time I would
13 tender Dr. Hart as an expert in neuroradiology.

14 MR. SAMORE: Judge, I object. He has not been
15 designated as an expert to give any opinions. We have received
16 no opinions from the doctor. He can testify as an expert
17 solely to what he did in this case, but not as an expert either
18 to comment on anything outside this specific record or on
19 anything Dr. Scheller did.

20 THE COURT: well, I'll reserve ruling, but I'm going
21 to go ahead -- I'll give you a standing objection, if you want,
22 but I'm going to go ahead and let all the testimony come in.

23 BY MR. MARSHALL:

24 Q. Now, Dr. Hart, did you have an opportunity to review the
25 scans for Calvin A.?

1 A. Yes, I have.

2 Q. And if I'm not mistaken, that was approximately back on
3 September 30th of 2014; is that correct? Or was it September
4 29th? I'm not certain.

5 A. The study was performed on September 30, 2014, and I don't
6 have the report here, so I don't know if it was read --
7 probably the same day. But I don't have the date of the report
8 in front of me.

9 MR. SAMORE: Judge, may I have a moment to ask if
10 Dr. Scheller wants to sit at counsel table instead of in the
11 gallery, so he can review the screen?

12 THE COURT: Sure, he can do that, or he can sit in
13 the jury box, whatever. It doesn't matter to me.

14 BY MR. MARSHALL:

15 Q. And I'm sorry I didn't provide this to you earlier. Would
16 looking at your report, would that help you during the course
17 of your testimony today?

18 A. Yes.

19 MR. MARSHALL: Permission to approach?

20 THE COURT: Yes. Feel free to go back and forth as
21 necessary.

22 BY MR. MARSHALL:

23 Q. Now, other than kind of like some red boxes that I think
24 were used for redacting some information, does it look like
25 your report that you authored?

1 A. Yes. So, I made the report on September 30, 2014.

2 Q. Now, in the course of reviewing the images, did you come
3 to some findings?

4 A. Yes. There are bilateral subdural fluid collections, and
5 then there was additional evidence of small areas of different
6 signal intensity that are most consistent with recent
7 hemorrhage. There was a small amount of blood in the left
8 lateral ventricle fluid-containing space within the brain on
9 the left side. There was blood, subdural blood, overlying the
10 cerebellum on both sides, and a small amount of blood over the
11 tentorium, subdural blood.

12 The MRV, the magnetic resonance venogram, showed no
13 evidence of dural sinus thrombosis. And there was a very small
14 focus of probable blood in the front between the two frontal
15 lobes.

16 Q. Now, if you --

17 A. My final -- pardon me.

18 Q. Go ahead.

19 A. One of my final notes under the Impression was: "Given
20 the findings of supratentorial and infratentorial" -- that is
21 both above and below the tentorium that separates the cerebral
22 hemispheres from the cerebellum and brain stem below --
23 "subdural hemorrhage and small amount of intraventricular
24 hemorrhage, correlation is necessary regarding mechanism of
25 injury including the possibility of nonaccidental trauma."

1 Q. All right. I'd like to go through some of those findings
2 and kind of have you help explain them. Could you pull up on
3 the imaging that first finding of a bilateral subdural fluid
4 collection and try to help kind of describe them for us?

5 A. Sure. The image that we're looking at, the set of images
6 that we're looking at on the left, is from a T2-weighted
7 sequence, a sequence that emphasized -- kind of a
8 bread-and-butter sequence that we always obtain. Cerebral
9 spinal fluid, the fluid around the brain and in the ventricles,
10 is quite white, and in general fluid, most fluid, is bright on
11 that sequence.

12 These crescent-shaped areas of white fluid outside the
13 brain are subdural. That is, they're beneath the dura and
14 outside the brain, outside the arachnoid space. Right here,
15 you can see the subarachnoid space, and there's a very thin
16 membrane or layer of blood. So these are bilateral subdural
17 fluid collections.

18 Q. I believe you made a comment about their signal intensity.

19 A. Yes.

20 Q. Could you explain that for us?

21 A. That's the technical term for what we see manifest on the
22 images as gray, shades of gray from white through black. So
23 that means -- what that's reflecting with MRI, which is created
24 by using radio waves in a very strong magnetic field and then
25 getting a very weak signal back from the body of radio waves,

1 this is reflecting how much radio signal we get back. So the
2 more we get, the whiter it is.

3 An MRI is very complicated, and we can emphasize different
4 qualities of tissue. The one I showed emphasizes mostly fluid.
5 This is called a flair sequence, and free fluid like the
6 cerebral spinal fluid in the ventricles here is very dark, and
7 the subdural fluid is not quite exactly the same. So there's
8 probably some increased protein content in there. However, I'd
9 also point out that this very thin white crescent here is some
10 additional subdural blood of a different signal, probably more
11 recent; new. And if we look down lower, the similar white
12 crescent here -- now we're below the tentorium -- that is
13 subdural blood in the posterior fossa.

14 In addition, this looks similar to the T2-weighted
15 sequence, because the fluid is very bright. And in one sense,
16 it is a T2-weighted sequence, but it's a type of acquisition
17 that makes some types of blood very dark, especially acute
18 blood. So this dark area here over the tentorium, and back
19 here between the hemispheres, represents blood. And this is
20 blood in the left lateral ventricle, that fluid-containing
21 space. Intraventricular blood.

22 Q. All right. So let's go back through. I have a few
23 questions about it.

24 The first one you were talking about was kind of the --
25 for your first Impression, it talks about the findings most

1 likely represent bilateral subdural hematomas. why do you say
2 that they most likely represent subdural hematomas?

3 A. I should probably start with a brief discussion of
4 terminology. Subdural hygroma has come up a lot, and it's a
5 problematic term, because it may be that to a pathologist
6 looking at the brain under a microscope, they can identify
7 readily a hygroma and separate it from a hematoma. But the
8 problem is, hygroma is used usually to refer to a fluid
9 collection that looks mostly simple and mostly close to
10 cerebral spinal fluid on CT or MRI.

11 The problem with it is that there are several conditions
12 that may give a similar appearance. A chronic subdural
13 hematoma may look like that after the blood, much of the blood
14 has broken down, part of it been resorbed, and you have some
15 remaining fluid with protein left. It may look like that. You
16 can get an appearance like that after some infections. Now,
17 that's not a consideration here. He had no evidence, that I
18 know of, of meningitis. But sometimes children with meningitis
19 can get a subdural fluid collection that looks like this. And
20 then sometimes you can get a tearing of the arachnoid, which is
21 a thin layer over the brain, and that can result in an
22 accumulation of cerebral spinal fluid in the subdural space.

23 So because there's confusion, I and a lot of my
24 colleagues, probably, tend to be cautious in how we use the
25 term subdural hygroma, because it's difficult looking at the

1 imaging alone to always know what's what.

2 Because there was blood and we've got subdural fluid, and
3 at least some of it was blood, I think that's the reason I
4 referred to it as hematoma, although other people may use the
5 term hygroma for at least part of this, and that would be, I
6 think, acceptable.

7 Q. Now, you mentioned that it's a possible hematoma. Is
8 there a way to age hematomas when you view them on the MRI?

9 A. It is very difficult.

10 Q. Why is that?

11 A. Blood is very complicated on the MRI. There is protein in
12 the blood and there's also iron, and the iron goes through
13 different stages as it goes through a transition. There's
14 oxyhemoglobin, which is the form of hemoglobin that carries
15 oxygen. When it's lost the oxygen, that's deoxyhemoglobin, and
16 then that changes to methemoglobin. The body sometimes --
17 cells, white cells, can take it up. Macrophages can take up
18 some of these breakdown products and you get hemosiderin
19 formed. All of these have different appearances on MRI
20 depending on which sequence you're looking at, so it becomes
21 very complicated.

22 And it's also become apparent that we're not terribly good
23 at looking at that and knowing for sure what's new and what's
24 old, so we tend to be somewhat cautious about putting a date.
25 If I see on CT scan a very dense appearance, then that's almost

1 certainly acute blood. But sometimes if you have a tear of the
2 arachnoid, or for various other reasons, you may have a darker
3 appearance on CT and still have acute blood. So one takeaway
4 is that sometimes we can identify, oh, this is very likely to
5 be acute blood, but other appearances could represent either
6 new or older blood.

7 Q. You may have already just done this, but can you
8 highlight, for that first Impression, where that was on the
9 MRI, again?

10 A. This sequence is probably -- the flair sequence is
11 probably the easiest to see. This crescent shape or sickle
12 shape outside the head, this is the bulk of the subdural fluid
13 that I was talking about.

14 Q. Now, what are things that could cause there to be subdural
15 bleeding there in this part of the head?

16 A. Well, most of the time it's trauma. The vast majority of
17 the time it's trauma. There are some very rare diseases that
18 predispose to subdural hematomas.

19 Q. Was there any evidence of those in Calvin's case?

20 A. No. And I have to say, we always count on the
21 pediatricians, also, to look in their history and examination
22 for some of these rare things. Glutaric aciduria type 1 can be
23 associated with subdural hematomas, but spontaneous. On the
24 other hand, there's a pattern of atrophy in the brain that's
25 not present in this case. So that was not a consideration.

1 But most of the time, it's trauma.

2 The subdural hematoma results from tearing at the
3 innermost layer of the dura, which is a thick connective tissue
4 membrane. Not skin, but just thick connective tissue deep to
5 the skull. And that doesn't tear apart with trivial injuries,
6 unless you have some of these very rare metabolic conditions.

7 Q. Can you highlight on the screen for us your second
8 Impression, which I believe you said was a small amount of
9 intraventricular hemorrhage in the left occipital orb?

10 A. Yes. This is on the gradient recall sequence, right here.
11 That's Image No. 11, Series 5, for the record, I guess.

12 Q. If you can -- I think you can even circle it on the screen
13 with your finger, if you'd like. Like that. If you touch the
14 screen --

15 A. Oh, this one?

16 Q. Yes.

17 A. Thank you. Can you clear it?

18 THE COURT: I think if you touch the bottom right, it
19 will clear your screen.

20 THE WITNESS: Okay.

21 BY MR. MARSHALL:

22 Q. Now, before the other -- you said it was kind of hard to
23 age this. Does this injury appear more acute, or can you tell?

24 A. This blood appears acute.

25 Q. And how can you make that determination?

1 A. That dark signal is what you see with acute blood.

2 Q. And is there a way to characterize the nature of this
3 injury? Is it like a small or large injury in this part of the
4 intraventricular hemorrhage that you're referring to?

5 A. It's a small amount.

6 Q. How quickly is this kind of blood in this part of the
7 brain absorbed?

8 A. A small amount is usually absorbed pretty quickly. That
9 is, within a day or so.

10 Q. Now, again, what are the most likely causes of an injury
11 to this part of the brain?

12 A. There are two possibilities. One is that a subarachnoid
13 hemorrhage may reflux backwards into the ventricle. There's
14 not a very large amount of subarachnoid hemorrhage here,
15 though. It appears to be a small amount. And so I'm skeptical
16 about that.

17 The other is that there's been a tearing of veins along
18 the inner surface, the lining of the ventricles, which I think
19 is more likely.

20 Q. What would cause that tearing of those veins?

21 A. Probably a shearing mechanism. That is, a back and forth
22 tearing.

23 Q. So would this be more likely to come from -- that injury
24 that you're describing, would that come from some sort of
25 trauma?

1 A. Yes. This is not something we ever see spontaneously.
2 This is a result of either trauma or -- you can have a
3 spontaneous subarachnoid hemorrhage from a ruptured aneurysm.
4 That's not the issue here, at all. But, you'd either have a
5 lot of blood in the subarachnoid space, or it's from trauma.

6 Q. Let's move on and discuss your third Impression where you
7 were discussing fluid that appeared to be likely hemorrhaged
8 over the cerebellar hemispheres, as well as I think you noted
9 some blood over the tentorium.

10 A. This is on the flair sequence, which is Series No. 8,
11 Images No. 5 and 6. I show this thin crescent-shaped white
12 signal, white-white appearance. That's subdural blood, and
13 probably not old, probably recent.

14 Q. And how do you make that determination?

15 A. Again, the signal here. On the flair sequence, the
16 chronic blood is something that could look like this. That is,
17 over the broader, larger areas overlying the frontal lobes,
18 this white appearance on the flair sequence is more likely to
19 be recent hemorrhage.

20 The other question you asked was regarding the tentorium.

21 Q. Yes.

22 A. This is the T2 gradient recall sequence, which is Series
23 No. 5. The very dark areas that I'm pointing to, Image No. 9
24 is one of the good examples of that, it appears to be blood
25 over the tentorium.

1 Q. Now, is it possible for the different hemorrhages that
2 you've pointed out, is it possible to have bleeding in one spot
3 that then flows to these other different parts of the brain
4 that you've identified, from the ventricles, the tentorium, the
5 frontal lobe?

6 A. Yes. Blood in the subdural space can flow -- it does not
7 typically flow, though, from above the tentorium to below the
8 tentorium. Seeing blood move above the tentorium -- let me
9 find an example.

10 Sometimes when we see patients with subdural hematomas,
11 the blood moves. So we may see more back here, and then I'll
12 follow up several days later and I may see more over in a
13 different area. And some of that depends on how someone is in
14 bed, if they're lying flat in bed for a significant amount of
15 time. So there can be some movement.

16 Q. But you were saying that it's less likely to transfer down
17 to the tentorium. Can you describe that, or why is that?

18 A. Yes. So, the tentorium is actually a reflection of the
19 dura that I mentioned. It's very tough connective tissue. It
20 wraps around the surface. Actually, part of it is the lining
21 of the bone that is the skull. And then an inner layer of it
22 folds in to provide partial separation in two places.

23 One is in the midline. It's very thin, and it gets a
24 little bigger as you get towards the back. It's called the
25 falx. And then the other is the tentorium. That is a

1 separation sort of top to bottom. Let me find the -- this is a
2 set of images looking, you can see, from the side, and this
3 very big space here is the cerebral hemisphere and some deeper
4 gray matter structures. This is the cerebellum, and the brain
5 stem here. These are separated by this very tough connective
6 tissue membrane that's actually a part of the dura that comes
7 off and folds in. So that comes clear up to here. There's
8 less tendency for blood to run down from above to below.

9 Q. And so in your experience, would you think it would be
10 more likely that these are independent injuries?

11 MR. SAMORE: Judge, excuse me. Before the answer is
12 entered, may I just confirm with the Court that we have a
13 standing objection to opinions?

14 THE COURT: Right.

15 MR. SAMORE: Thank you.

16 THE COURT: Well, let me ask, he was a treating
17 physician.

18 MR. SAMORE: Yes, but he has been giving a number of
19 opinions beyond that of a treating physician in the file. We
20 only received his CV Friday night late, and looked at it
21 Saturday. He has had no designation as an expert to render
22 opinions, as the doctor has been. That's what we want to make
23 sure the Court understands.

24 THE COURT: Well, I'll note the objection for the
25 record. Anything you want to state, Mr. Marshall?

1 MR. MARSHALL: Your Honor, I think at this point
2 we're still talking about findings from the child. We're not
3 doing anything that could controvert any of Dr. Scheller's
4 claims. At this point, we're still discussing his Impressions
5 and his findings that are in the medical records that were
6 turned over in discovery.

7 MR. SAMORE: And I have at least six opinions that
8 I've been writing down. I haven't been writing them all. This
9 gentleman is obviously very learned.

10 THE COURT: Yes, I know, but for a treating physician
11 to interpret, for example, a CT scan, you necessarily have to
12 draw some conclusions and come to some opinions, because you're
13 interpreting the scan in connection with treating the child.

14 MR. SAMORE: He's the radiologist. I don't think he
15 qualifies as the treating physician. But I think the Court --

16 THE COURT: Right, but he's interpreting the scan for
17 the benefit of the treating physicians, so he necessarily has
18 to come to some conclusions.

19 MR. SAMORE: That portion, yes, we agree on. But I
20 just think he's gone beyond that.

21 THE COURT: Well, I'll note that for the record.

22 A. I forgot your question.

23 BY MR. MARSHALL:

24 Q. I think my question was, would it be your opinion that the
25 injuries below the tentorium are more likely to be independent

1 from the ones that were in the other places that you've
2 mentioned? I think either the ventricle or the other subdural
3 space. The frontal lobe, I think you mentioned.

4 A. Yes. Because, again, in reference to my interpretation of
5 the scan, the fluid space is above. The dura is physically
6 separated quite a bit. So peeling off part of that dural layer
7 above is not likely to peel all the way down to below. It's
8 more likely they may have occurred either at the same time, but
9 in separate locations, or at different times. And I've already
10 explained that it's hard to know the exact timing.

11 Q. We kind of discussed the one that was subdural. Similarly
12 with the intraventricular hemorrhage, is that likely -- or is
13 that possible, that it's an independent injury, as well, from
14 the other injuries?

15 A. Yes. I considered that all three of these are potentially
16 independent signs of trauma, which is why my fifth item in the
17 Impression portion of the report was, considering all of these
18 factors together, we need to consider -- or ask the question,
19 what caused the trauma.

20 Q. All right. Just briefly, you made a fourth Impression,
21 which was that there was no dural venous sinus thrombosis. Why
22 was it important for you to note that?

23 A. There's a very small minority of those who are defending
24 in child abuse cases who have suggested that venous sinus
25 thrombosis -- that is, blood clots in the veins that drain the

1 head, the brain -- may actually cause subdural hematomas.

2 There's almost no scientific evidence for that, and I think it
3 has very little support, but because that's out there, we
4 usually include -- we would comment specifically on that
5 possibility.

6 we did not find any evidence of clot in the veins in this
7 case. But we do a sequence, which I haven't shown, a magnetic
8 resonance venogram.

9 Q. Does that image show the venous structure of the brain?

10 A. Yes. So, this is part of what's called a magnetic
11 resonance venogram. It's actually a specific sequence that is
12 performed by highlighting moving blood -- in this case, slow
13 moving blood -- in the veins, and then the computer
14 reconstructs it into images. The images of the brain, the
15 fluid and so on are deliberately chosen to be very dark so they
16 don't show up, so what we're seeing is the veins.

17 And although there's some asymmetry here, most of the
18 drainage in this case is to the left. Very little to the
19 right. That's a normal variant. And there's no evidence of
20 blood clot.

21 Q. Now, you also, as a part of your report, you had an
22 addendum. Can you describe for us if there was any sort of a
23 finding, or why it was important to note that you made this
24 addendum in your medical record?

25 MR. SAMORE: Could I ask the page be identified?

1 MR. MARSHALL: It is 47 on the Bates. It's the
2 addendum.

3 A. This is a sequence called diffusion weighted imaging. We
4 have not looked at this yet. One of the primary purposes is to
5 identify areas of infarction -- that is, dead tissue -- in the
6 brain. For example, after a stroke. You can see it sometimes
7 with brain trauma.

8 We have a small focus that's bright, right here, and
9 that's what I was referring to, an acute clot. And it would
10 have to be acute. Let me see, I'm looking at Series No. 12,
11 Image No. 22. I keep forgetting, but I know for the record you
12 need that. This probably represents another focus of
13 hemorrhage.

14 And then I also mentioned bilateral thin posterior
15 subdural fluid, likely hemorrhage, overlying the occipital
16 lobes. I'm looking on the flair sequence, Series No. 8 and
17 Image No. 8. You can see it on several images. So this
18 represents another location. I would say this could be an area
19 where you might have some movement of blood from above the
20 tentorium.

21 BY MR. MARSHALL:

22 Q. Okay. Now, as part of your review -- well, have you had a
23 chance to review Dr. Scheller's report?

24 A. Yes.

25 Q. One of his opinions, and I think it's opinion -- I don't

1 know if it's numbered, but I think it's his second opinion,
2 discusses whether or not there was a skull fracture versus
3 comparing it to the CT image. It seems like Dr. Scheller ruled
4 out the possibility of a skull fracture. Would you agree with
5 that assessment, to completely rule out the possibility of a
6 skull fracture?

7 A. No, I would not.

8 Q. And why is that?

9 A. Depends very much on the quality of the CT scan. The
10 patient actually had two skeletal surveys done, and a skeletal
11 survey is a set of x-rays, plain x-ray studies, that's
12 absolutely standard in child abuse cases, because often that's
13 better at identifying fractures than anything else. We always
14 assume that CT and MRI are the best for everything, but that's
15 not always the case. So a skeletal survey can be very
16 important.

17 On both of them -- on one view of the head, looking from
18 the front, we have a black line, straight line, right here.
19 I'm sorry, let me see if I can -- all right. So within my circle
20 there.

21 Now, I don't know for sure if that's a fracture. It's
22 suspicious. I would not agree that we can exclude a fracture
23 because the CT does not show it. The CT scan, unfortunately,
24 was suboptimal. It's done with five millimeter slice
25 thickness. That is pretty standard for looking at adults.

1 It's not something I would consider acceptable for looking at
2 children. At the University of New Mexico, we always -- well,
3 actually, nowadays adults and children are done with thinner
4 slices. But even in the past, we always insisted that children
5 should be done with three millimeter thickness of the slice,
6 and sometimes less, to enable us to do reconstruction images.

7 If you have thin enough slices, they can use the computer
8 to look at reconstructed images in another plane. For example,
9 I believe the images Dr. Scheller showed with CT as examples
10 that were done through a coronal set of images, as if we were
11 looking from the front, those are not directly acquired that
12 way. Those are done from a regular CT slicing through the body
13 as if we're going through the long axis of the body across.
14 And then if you get thin enough pictures, you can use the
15 computer to create an image that looks as if you're looking in
16 a different plane, either from the front or from the side.

17 That's simply not possible with these five millimeter
18 slices. I tried. I went back recently and tried using the
19 multiplanar reconstruction software that we have available, and
20 five millimeter slices are just too thick. If a fracture is in
21 the same plane, more or less close to the plane of acquiring
22 the CT scan, you can easily miss a fracture. I've seen very
23 long fractures going most of the way across the head that were
24 almost impossible to see on a CT scan if they're in the same
25 plane, if they're lined up. And this is not a long one. If

1 it's real, and I'm not sure, but if it's real, it's small or
2 short.

3 And the CT scan, which was not performed at UNM, it was
4 performed at a community hospital -- and I'm not saying this to
5 say bad things about them. It's not a trauma hospital. But
6 just to make it clear that they're coming from a place where
7 they're not used to seeing this, it was done with an adult type
8 protocol, and it's not adequate to exclude a fracture.

9 Q. Now, Dr. Scheller had kind of a third note or third
10 opinion that said that the "CT scan and MR scan were
11 misinterpreted to demonstrate chronic or subacute subdural
12 hematomas. In fact, the scans revealed chronic subdural
13 hygromas. Subdural describes the location and hygroma
14 describes the thick fluid nature of the collection."

15 would you agree -- he goes on a little bit there, but
16 would you agree with that assessment that he makes at that
17 point?

18 A. Well, I think we're talking about mostly differences in
19 terminology. I gave an explanation early on about how
20 difficult it can be to know for sure, and I think I heard
21 Dr. Scheller call this a subdural hematoma at some point, as
22 well.

23 I think this may be what some people would term a hygroma,
24 and I don't really have an issue with it. The important thing
25 is that most subdural hygromas, the vast majority of them, are

1 the result of trauma. They don't just happen.

2 Q. All right. He goes on in that same section to say that
3 many of these result from birth or unknown reasons. Now, would
4 you agree with that part of the statement?

5 A. No.

6 Q. I think you just eluded to it a little bit in your
7 previous statement, but would you care to elaborate?

8 A. Well, maybe it's not immediately known, but the weight of
9 the scientific consensus right now is that most of these are
10 the result of trauma. The subdural hygroma is a post-traumatic
11 condition.

12 Now, can they occur from birth? Subdural hematomas can
13 occur with birth. Actually, there's maybe some amount of
14 bleeding inside the head in almost half of newborn infants.
15 But there have been several studies looking at this in a
16 prospective way. That is, looking at children at birth to see
17 what's -- typically with MRI, not CT, so you don't use
18 radiation. But to use MRI, and then look again on follow up.
19 One of the larger of these studies by Dr. Rooks and colleagues
20 looked at over 100 children, and almost half had some blood.
21 Almost all of it had gone away by one month of age, and all of
22 it had resolved by three months.

23 So in the sense that these may result from birth trauma,
24 yes. But to last until eight months of age, no. I think
25 that's extremely unlikely.

1 Q. And you also mentioned that the majority of these come
2 from -- for a child of this age, at eight months, that the
3 majority, I believe you stated, would come from some sort of
4 trauma.

5 A. Yes.

6 Q. You mentioned that that was in the literature. Do you,
7 offhand, do you have some of the literature that you would be
8 referring to when it comes to that?

9 A. There's an excellent review article that was in the
10 American Journal of Neuroradiology in 2015 on subdural hygromas
11 in infants by Wittschieber.

12 Q. I'm going to present you with what's been marked as
13 Government's Exhibit 26. Is this the article that you're
14 referring to?

15 A. Yes.

16 Q. And what does this article discuss regarding hygromas and
17 trauma?

18 A. One of the important points is that they can represent a
19 chronic stage, or they may be seen acutely. So it's difficult
20 to -- again, unfortunately, it's difficult to put a precise
21 age. I have seen examples where you see subdural hygromas
22 where there's a clearly known accidental cause of trauma, and
23 we see it within a couple of days. So we know that hygromas
24 can occur acutely.

25 Actually, just last week when I was reading out a few days

1 ago, I saw a case that had an acute injury, and after only two
2 or three days had something that looked very much like this
3 type of hygroma. So these can be either acute or chronic.

4 One of the other important take-home messages to me was
5 the statement here at the end of the summary on the first page.
6 "If other infrequent reasons can be excluded, the presence of
7 subdural hygromas strongly suggests a post-traumatic state and
8 should prompt the physician to search for other signs of
9 abuse."

10 Now, you can get it from accidents, but it's most of the
11 time the result of trauma, and it's the responsibility, then,
12 having seen this, of physicians to search for possible causes.

13 Q. Now, regarding his fourth opinion -- and you have the book
14 that's already been admitted as an exhibit next to you, I
15 think. It's Exhibit 3 if you want to look at it for reference.
16 But his kind of Point No. 4 were that: "Subdural hygromas of
17 infancy are usually benign, but they can occasionally cause
18 small brain surface hemorrhages." And then he gives several
19 reasons for that. I was just wondering if you would agree with
20 that assessment or not.

21 They're not numbered, but he does little bullet marks. So
22 it's the fourth one down on Page 2 of Exhibit 3.

23 A. So this is -- "First, small vessels that course from the
24 inner skull to the brain's surface are stretched by the fluid
25 accumulation and can tear and leak blood." That's probably

1 correct.

2 "Second, the body attempts to wall off the fluid
3 collection and builds a membrane. This membrane is vascular
4 and can leak blood as well." Basically, this is describing the
5 mechanism for formation of a chronic subdural hematoma, and my
6 understanding, for example, from this 2015 article is that
7 that's actually now considered -- the process of formation
8 often of a chronic subdural hematoma is that you have a
9 hygroma, then formation of membrane, and some additional
10 bleeding or leaking.

11 "A small surface hemorrhage is apparent on Calvin's head
12 CT and MR scans," to quote again from the report. Probably.
13 It's so small that it may be subarachnoid. It may be within
14 the subdural space.

15 Q. What about his opinion that they are usually benign? I
16 think that's in the first sentence of that point.

17 A. Oh, "usually benign." Well, I'm not sure that I can
18 answer. Benign sounds like it's really asking more of a
19 clinical question, and as a radiologist, I'm not as much part
20 of the clinical assessment. But I would not agree that they
21 are something that we just happen to see and blow off. They're
22 a sign of trauma.

23 Q. In his report and when he was testifying, Dr. Scheller
24 referenced that bleeding on the brain can sometimes cause
25 seizures. However, on the stand, he said that subdural

1 hematomas do not cause seizures. Do you agree with that
2 statement that he made on the stand?

3 A. Yes. Sometimes you may have a seizure, though, from the
4 same incident or trauma that caused the subdural hematoma.
5 That is, it's thought to be most often due not to impact, but
6 to shearing or tearing either of that membrane or of the veins
7 going right to the surface of the dura. And then that same
8 shearing or tearing mechanism may damage the brain, as well,
9 and that may cause seizures. Most of the time when we look at
10 -- let me back up.

11 If we see definite brain abnormalities on MRI, that's
12 certainly a sign that there's been major damage. However, most
13 patients with a concussion have no abnormalities to the brain
14 visible on MRI. I'm sure everybody here knows that concussions
15 are a huge topic now in sports and lots of other areas, and I
16 wish it were as easy as saying that you could get an MRI to
17 find out if a patient has a concussion.

18 There are some very sophisticated research type
19 examinations that may suggest abnormalities with a concussion,
20 but they're not routine imaging studies. A normal MRI usually
21 does not show abnormalities of the brain with a concussion, and
22 certainly a patient might have a seizure without having visible
23 brain damage on MRI.

24 Q. So there could be some sort of brain damage that we're not
25 seeing from the MRI that could have caused the seizure, or

1 could have caused the other effects that he was having? The
2 lethargy, the emesis, the list of other kind of symptoms that
3 he was having.

4 A. Yes.

5 Q. The inability to focus, those kinds of things?

6 A. Yes, sir.

7 Q. So it's possible to have brain trauma that's not visible
8 on the MRI?

9 A. Absolutely.

10 Q. There's also been some discussion that this child had an
11 enlarged space on his head. On the MRI, does it appear that he
12 has an enlarged subarachnoid space or subdural space?

13 A. No. The short answer is, no. I think the browser program
14 seems to have stopped here. Oh, good, it's going to open
15 quickly.

16 This is subdural space, this white crescent out here. The
17 very thin area of blood immediately next to the surface of the
18 brain is subarachnoid space. So this is not Benign Enlargement
19 of the Subarachnoid Spaces, or BESS, as some people refer to
20 it.

21 Q. I think there was also another term. I don't know, was it
22 hydrocephalus?

23 A. So, yeah, an old term for Benign Enlargement of the
24 Subarachnoid Spaces was external hydrocephalus. Although I'm
25 not sure anyone knows for sure, the general thought has been

1 that this is not just because the fluid magically accumulates,
2 but because there's a delay in maturation of the mechanism that
3 resorbs fluid.

4 Your body makes a lot of cerebral spinal fluid every day.
5 An adult has maybe 120 to 150 cc's of cerebral spinal fluid
6 around your brain and spine, spinal cord, and you make 500 to
7 600 cc's a day. So obviously a lot of it is absorbed
8 constantly. You're always making it and resorbing it. And if
9 that gets out of balance, then you can have some accumulation.

10 In infants, sometimes in the first -- it's thought that in
11 the first, oh, 18 months of life, you simply don't yet have a
12 mature mechanism for resorbing that fluid, and in those cases
13 you can get this Benign Enlargement of Subarachnoid Spaces.
14 That almost always gets better on its own. It doesn't require
15 any intervention. But he doesn't have it.

16 Q. Okay. Now, in Dr. Scheller's final opinion, he kind of
17 characterized this as a "chronic intracranial fluid circulation
18 condition of infancy." Is that a specific finding?

19 A. I'm not sure I know what that means. But the fluid that
20 we're seeing, we have no proof that this is chronic. This may
21 have all been -- even what looks like may have been subdural
22 hygromas, to use some terminology, can be seen with acute
23 trauma.

24 So, some of it may be old, there's certainly some new.
25 The blood in the ventricle. Some scattered areas that looked

1 different on CT, that were bright on CT. Some areas that
2 looked very dark on the gradient recalled sequence. So there's
3 some small areas that clearly look new. The areas that look
4 more like fluid, we just don't know for sure. They could be
5 old, but they could be relatively recent.

6 Q. And I think you may have mentioned it already, but was
7 there a study that talks about the findings can be, even of
8 this kind of mixed density, can be hyperacute, acute, subacute,
9 or chronic, that you've already referred to?

10 A. That's been reported in a number of studies. The article
11 that I mentioned talks about different densities. There are
12 others. There was a very nice review from -- I'm blanking on
13 the name. Bruno Soares, but I'm forgetting the first author's
14 name. But it revealed imaging findings. It talks about the
15 fact that you can see mixed density even in acute subdural
16 hematomas.

17 Q. Now --

18 A. And acute hemorrhage. And I'm going to, again,
19 indicate that I've got to be careful about hygroma versus
20 hematoma. These are slippery terms.

21 Q. You were present in the courtroom when Dr. Scheller was
22 showing some of his images earlier?

23 A. Yes.

24 Q. Do you recall one of the images that he said had
25 unilateral BESS and then subdural hematoma, I believe, on the

1 other side?

2 A. Yes.

3 Q. Do you agree with that assessment of calling it kind of a
4 unilateral BESS, as well as a subdural hematoma, based on just
5 that one shot? I don't think you had access to the whole
6 series.

7 A. All I could see was the one shot. Well, it looked like
8 enlarged subarachnoid spaces on the right side, I would agree
9 with that. I would have to say, though, that it's important to
10 note that almost always when we see benign extra-axial spaces
11 of enlarged subarachnoid spaces of infancy, or BESS, it's the
12 same on both sides. It's bilateral. It's on both sides.

13 So the fact that we saw it only on one side makes me think
14 that the subdural hematoma on the other side was probably from
15 trauma and may have sort of pushed out the fluid on the other
16 side.

17 Q. Part of Dr. Scheller's discussion made it seem like these
18 hygromas, that he was calling it, are a normal finding as part
19 of practice. Would you consider finding hygromas on a child's
20 brain, is that like a normal finding or a benign finding as
21 part of your practice?

22 A. It's uncommon, first of all, and then secondly, when it
23 occurs, it simply has to raise the question of trauma. If
24 that's the only finding, it would be difficult for me to say,
25 oh, this is definite evidence of trauma. But I don't consider

1 it a normal or incidental finding on a scan. It's something
2 that we would almost always talk to the referring pediatrician
3 or surgeon or emergency room doctor about and say, you need to
4 look into this.

5 MR. MARSHALL: May I have just a moment, Your Honor?

6 THE COURT: Sure.

7 BY MR. MARSHALL:

8 Q. The last brief line of questioning, you kind of mentioned
9 this earlier when it came to kind of just generally the idea of
10 subdural hematomas and some of their causes. As part of the
11 research, does it appear that they can come from both impact as
12 well as kind of shearing or whiplash injuries?

13 A. Yes.

14 Q. Is one more common than the other, in either the
15 literature or your experience? And if you can, identify from
16 which.

17 A. I think that it's generally considered that shearing is
18 the more important mechanism in the formation of subdural
19 hematomas, but obviously it may also have impact. So I'm not
20 sure I can answer your question any more precisely than that.

21 Q. And does the literature support, though, that that kind of
22 shearing mechanism can cause those subdural hematomas?

23 A. Yes.

24 MR. MARSHALL: Pass the witness, Your Honor.

25 MR. SAMORE: Judge, before I begin my questions for

1 the doctor, I just wish to confirm with the Court that by
2 asking some cross-examination questions of him today, counsel
3 does not want to be waiving his standing objection that he made
4 previously regarding not having this doctor listed to offer
5 opinions. May I do so?

6 THE COURT: Yes. I don't consider that -- I mean,
7 again, I didn't rule on the objection, but I was letting the
8 record be made complete in light of the fact that -- so the
9 doctor will only have to testify once.

10 MR. SAMORE: Yes.

11 CROSS-EXAMINATION

12 BY MR. SAMORE:

13 Q. Trying to use the time wisely, but I'm certainly going to
14 caution, Doctor, that I may ask the Court's permission to
15 complete my cross-examination at a later time. But let's get
16 as much done as we can today. Okay?

17 A. All right.

18 Q. One of the last questions that my colleague, Mr. Marshall,
19 asked you about is, you were talking about shearing mechanism.
20 Do you find evidence that a shearing mechanism occurred in
21 Calvin's case?

22 A. I'm not sure what you would mean by how I would prove
23 that, other than by the fact that there's subdural fluid
24 collections, which often result from shearing.

25 Q. That could be an explanation, but we just don't know, do

1 we?

2 A. Well, we don't know the reason, but it's probably from
3 trauma.

4 Q. All right. Are you able to date -- and I think this is
5 part of your testimony. There was some difficulty in dating
6 when subdural hematomas occur; is that correct?

7 A. Yes.

8 Q. Did I understand that?

9 A. If you see acute blood, sometimes we're able to say that
10 that's acute. But if it's mixed, it's very difficult to know
11 if it's all new, or old, or a mixture of new and old.

12 Q. And sometimes the subdural hematoma can exist for months
13 and be asymptomatic; isn't that true?

14 A. Months? I don't know about that. I'm skeptical about
15 that.

16 Q. You tell me. I'm trying to understand this.

17 A. Well, first of all, months would imply that we're worried
18 about birth trauma, and the studies that have been done have
19 not found that to be the case at all. It does not persist
20 beyond three months. And eight months would be, I think, very
21 unrealistic.

22 Q. Are you --

23 A. Even -- if I could just finish my thought.

24 Even in adults with chronic subdural hematomas, sometimes
25 they last months, but often they have some symptoms, the

1 patients have some symptoms.

2 Q. And are you familiar with -- there's been some testimony,
3 but Dr. Jenny in her report in 2017 specifically found that
4 between four and six months, Calvin's head expanded rapidly,
5 and the unusual growth occurred, she stated, because of
6 subdural hemorrhages. Are you familiar with that passage?

7 A. I have not read her report.

8 Q. Okay.

9 A. And I --

10 MR. SAMORE: I'm going to ask the Court's
11 permission --

12 THE COURT: Let him finish answering the question.

13 BY MR. SAMORE:

14 Q. I'm sorry.

15 A. I have not -- I mean, the head circumference issues are
16 not really within my area of expertise as a neuroradiologist,
17 and I have not read Dr. Jenny's report.

18 Q. Okay.

19 MR. SAMORE: Well, just for purposes of this
20 question, and I'm not going to ask him to diagnose, but may I
21 approach the witness? I'm just going to take Government's
22 Exhibit 22 and refer the doctor to Page 10, Paragraph 8. May I
23 approach the witness?

24 THE COURT: Do you want him to look in that exhibit
25 book?

1 MR. SAMORE: Oh, that's even better.

2 A. Could you repeat that, where it's located?

3 BY MR. SAMORE:

4 Q. Sure. Page 10 of Exhibit 22, near the top of the page,
5 Paragraph 8. Tell me when you've had the opportunity to read
6 that paragraph.

7 A. Okay, I've read it.

8 Q. Now, Dr. Jenny in that paragraph, correct me if I'm wrong,
9 appears to conclude that the "unusual growth occurred because
10 of subdural hemorrhages resulting from one or more head
11 injuries he experienced during that period of time."

12 Did I read that correctly?

13 A. Yes.

14 Q. Is there anything in your work that would confirm or be
15 against what she found there?

16 A. No. The only thing I remember is from Dr. Scheller's
17 report listing head circumference. 75 percent, 75 percent,
18 75 percent, 90 percent. It's not that large a change.

19 Q. But we can agree that Dr. Jenny found this in Paragraph 8
20 of her report, didn't she?

21 A. That's in the report.

22 Q. All right. Now, do you measure head circumference in any
23 of your patients?

24 A. No.

25 Q. So all we have to refer to is Dr. Jenny's finding here?

1 A. Well, all we have to refer to is what's in the chart.

2 Q. All right. Did any of the images that you saw demonstrate
3 that there was any brain compromise?

4 A. No.

5 Q. I know there was an article that I think I just saw for
6 the first time, I believe, and handed to me by a colleague. It
7 was an article from 2015, and let's see if I pronounce the name
8 correctly. Wittschieber. He was describing, I think it was
9 Exhibit 26 today, and that referred to subdural hygroma. Do
10 you recall that reference?

11 A. Yes.

12 Q. So in 2015, he's using the term subdural hygroma?

13 A. Yes.

14 Q. All right. And that article wasn't a research paper, was
15 it?

16 A. This is a review of 100 papers evaluating the question of
17 subdural hygromas in head trauma in infants.

18 Q. So it was really his opinion piece on --

19 A. No, I wouldn't agree with that categorization of an
20 extensive review article, at all, as an opinion piece.

21 Moreover, if you look through the references, some of it's
22 based on his research, as well. But it's a review, extensive
23 review and synthesis of a great deal of research, and to my
24 mind, that carries a lot more weight than one person's opinion.

25 Q. Doctor, I just received it 15 minutes ago while you were

1 testifying, so I assure you, I'll give it a look. And thank
2 you for pointing that out. That's a good place to go.

3 There was also some testing done, or at least some imaging
4 of this child's head that you described.

5 A. Yes.

6 Q. All right. And you're not telling us -- or maybe you are,
7 so correct me if I'm wrong. Are you telling me that a CT scan
8 is a better way to determine if there's a skull fracture than
9 an x-ray?

10 A. If you have a CT -- no.

11 Q. I apologize. I'm not a doctor.

12 A. That's an oversimplification. Sometimes some fractures
13 are going to show up on a regular old x-ray than on a CT.
14 However, a modern -- and by that I mean, right now -- CT scan
15 done with very thin slices that enables you to do
16 reconstructions and often a 3D view, so that you create a look
17 as if you're actually looking at the outside of the head and
18 you turn it around, that is something that can be very helpful
19 in either confirming or rejecting the idea of a skull fracture.
20 That simply is not available in this case.

21 Q. The testing could have been done, but it wasn't; is that
22 correct?

23 A. I don't know what capabilities they had on their machine
24 to do the very thin slices and the reconstructions.

25 Q. We have no evidence or finding that there was a skull

1 fracture, do we?

2 A. We have a suggestion from the x-rays. So that is
3 evidence. I cannot confirm it, and I do not believe a CT can
4 exclude it.

5 Q. Okay. So what we're saying is, it's possible, but we
6 don't have any evidence confirming that there was any skull
7 fracture?

8 A. Yes, I agree. Nor do we have evidence excluding it. At
9 this point, it remains a possibility.

10 Q. The child, if you know, the child was, upon admission to
11 UNM for some initial tests, he was taken from ICU to the
12 regular floor, wasn't he?

13 A. I don't know. I have not reviewed the medical record.

14 Q. And that child was released and has had no permanent
15 consequences from whatever happened on September 28th?

16 MR. MARSHALL: Objection. This is, I think, outside
17 the scope, and I believe it was already asked and answered by
18 the witness.

19 MR. SAMORE: I don't think it was asked.

20 THE COURT: I don't think it was. I'll allow it.

21 BY MR. SAMORE:

22 Q. If you know.

23 A. I'm sorry; what was the question?

24 Q. If you know --

25 A. I have not reviewed the record. So, I mean, I'll take

1 your word for it, but I haven't reviewed the record.

2 Q. Okay. But you don't know one way or the other if Calvin
3 is just peachy fine today, or if he had problems; is that
4 correct?

5 A. I have heard secondhand that he is doing relatively well,
6 and that's as far as --

7 Q. Okay, that's fair. We're just asking if you know.

8 Was there anything in your examination -- and again, I
9 think you just looked at the radiology. You never saw the
10 child personally, did you?

11 A. That's correct.

12 Q. All right. Was there any sign of a skull, scalp or brain
13 substance trauma, if you know?

14 A. Well, we've discussed the skull question already. The
15 possibility of a fracture, that we're not certain of, but can't
16 exclude. Scalp, was that one of your questions? Did not see
17 any scalp injury.

18 Q. Was there a neomembrane on that MRI scan of September 30?

19 A. I don't think I can say for sure.

20 Q. What would a neomembrane imply, if it was seen there?

21 A. Chronicity. That is, there's some age.

22 Q. Now, you may have answered this. Your responsibilities at
23 the hospital don't include diagnosing a neurological problem
24 like this child had, do they?

25 A. Would you rephrase the question?

1 Q. I'll rephrase the question.

2 A. Thank you.

3 Q. When a child presents with a neurological problem like a
4 seizure, who does the diagnosis? What specialty?

5 A. That's not me, you're correct. That would be the
6 neurologist or pediatrician or neurosurgeon.

7 Q. And you are not qualified to diagnose child abuse, are
8 you?

9 A. I look at trauma every day that I'm practicing, and so I
10 am aware of some red flags. I'm not making the ultimate
11 diagnosis, but there are things that would lead me to say, I'm
12 concerned about the possibility.

13 Q. Fair enough. Would you say that you are -- you've heard
14 of the triad that we've discussed today, and previous to this
15 day?

16 A. Uh-huh.

17 Q. "Yes"?

18 A. What was the question?

19 Q. The triad. Retinal hemorrhaging, and we're talking about
20 in an infant, retinal hemorrhaging, a finding of that, a
21 finding of subdural hematoma, and a finding of some
22 encephalopathy. That's the term that's used, triad. Are you
23 familiar with that term?

24 A. I am.

25 Q. Are you a supporter that if the triad is found in an

1 infant without other explanation, that there is immediately
2 suspicion on the caregiver for AHT?

3 A. There's a level of suspicion. I'm not the one making the
4 diagnosis, as you pointed out.

5 Q. That's a fair distinction. All right, that was my
6 question.

7 You described, and you showed us, I think, on the video,
8 there was some small subdural hemorrhage. Would you describe
9 that amount as miniscule? Small? How would you describe it?

10 A. I would say small.

11 Q. How big, if you put that into a size? And you may have
12 said that, and if you did, I missed it. What would the size of
13 that be?

14 A. I'm not very good at estimating volume. It would be, you
15 know, maybe a few cc's, total.

16 Q. Could it be that big (indicating)?

17 A. If you had everything put together.

18 Q. How many cc's in a drop of blood, just a standard drop of
19 blood? Can you characterize it that way?

20 A. No, I think it's more like about 20 cc's -- I'm sorry;
21 drops?

22 Q. Yes, just a drop of blood.

23 A. How many drops is that?

24 Q. Say a drop of blood, about the size of a pin, the end of a
25 pin, what would the number of cc's be in that?

1 A. That's much less than a cc.

2 Q. Okay, that helps me try to understand that. Thank you.

3 Couple final questions, and these are going to relate to
4 the dating. I was trying to follow some of the testimony you
5 had regarding when there's -- there's also Dr. Scheller's
6 testimony -- acute, subacute, hematoma, hygroma. I'm going to
7 use that generally now.

8 When you say it's difficult to date when the actual injury
9 occurred, I'm just going to ask you to describe that in a
10 little more detail, if you could. Do you mean when you look at
11 it by the color, the color of the spot, it's whether it's
12 cottony, whether it's darker? How does that work?

13 A. It's primarily relating to the color of the grayscale
14 appearance. So on a CT scan, and the CT is much simpler, high
15 density, which means acute blood, is usually, not always, but
16 usually pretty white, and that changes over several weeks to
17 get darker and darker as it goes through a normal process of
18 breakdown.

19 However, with an acute subdural fluid collection, it's
20 clear that sometimes you get cerebral spinal fluid leak in as
21 well as blood. So a mixture of dark fluid and bright fluid may
22 mean old, but it also could occur acutely.

23 Q. When you say old, could old be two or three months?

24 A. Potentially.

25 Q. Okay. So the injuries -- is it possible that, for

1 example, some of the findings you had that may -- that were
2 suspicious for trauma, if that's what I think I understood your
3 testimony to be, they could have occurred two or three months
4 prior to September 28, 2014?

5 A. Yes, I believe some of it could. I think it's unlikely.
6 I've explained the intraventricular blood, the posterior fossa
7 blood. The evidence is strongly in favor that that was recent
8 hemorrhage, and it is also possible that it was all recent.
9 But, yes, some of it could be old.

10 Q. Could it be old -- could it be three or four months old?

11 A. I can't put a precise date on it.

12 Q. I'm not asking you to be precise, I'm asking you within
13 your experience and your training, is it possible that any of
14 the findings you had could have occurred from trauma as long as
15 four months prior to September 28, 2014?

16 A. Perhaps.

17 Q. And there's no way, really, to know with any certainty?

18 A. Regarding the?

19 Q. Regarding when those injuries occurred, if, indeed, it was
20 due to trauma. Pardon me; I misspoke. I said injuries. Those
21 findings.

22 A. Those findings, I cannot put a precise date on them.

23 Q. That's just not within a reasonable degree of medical
24 certainty, is it?

25 A. The bright spot on CT, the dark blood in the ventricle,

1 that's acute. Some of the posterior fossa is likely acute.

2 But the broader areas, I cannot put a date on them.

3 Q. And one of the other issues that I think you rose, and
4 please correct me if I don't state it correctly or precisely
5 enough, but these injuries -- pardon me. I'm taking out the
6 word injury.

7 when you have certain findings in your specialty and you
8 don't have any explanation from a previous test of the child --
9 a birth trauma, I think was an example you used, but there can
10 be other occasions that might explain why there might be a
11 finding of a hygroma, a subdural hygroma, a subdural hematoma.
12 Unless there are specific tests done on that child when it is
13 doing its monthly well checks, if the child is asymptomatic, we
14 wouldn't know if there was anything preexisting, would we?

15 A. I agree.

16 Q. One other question that I heard, or I'm going to follow up
17 with, that my colleague asked you in direct, and please correct
18 me. Is it possible that the findings you had, however they
19 were created, could have occurred -- I think there were three
20 findings that you mentioned specifically, and I may have
21 misheard. But could they have occurred at three different
22 times, whatever caused them to arise?

23 A. Possibly.

24 Q. And they could have occurred at one time; is that
25 possible, too?

1 A. Yes. But in that case, not all old.

2 MR. SAMORE: Judge, I have no further questions at
3 this time.

4 Doctor, thank you for your patience with my clumsy
5 wording.

6 THE WITNESS: Thank you.

7 THE COURT: Is there redirect?

8 MR. MARSHALL: Just briefly, Your Honor.

9 REDIRECT EXAMINATION

10 BY MR. MARSHALL:

11 Q. On cross-examination, you were asked a question about, I
12 believe it was Exhibit 26, the study on the hygromas from 2015.

13 A. Yes.

14 Q. Now, you were characterizing this as, I think, a review of
15 many other studies; is that correct?

16 A. Yes.

17 Q. And why is that important? why is that important for this
18 kind of medical literature?

19 A. It provides a broad overview of the scientific and medical
20 evidence that's available at that time. So it's not just an
21 opinion, it's a summary and synthesis putting together a lot of
22 different evidence, a broad survey.

23 Q. And there was some discussion, as well, there at the end,
24 discussing about the one finding, that it was possible that it
25 could be older; is that correct?

1 A. Yes.

2 Q. Now, in your experience, how does -- have you seen
3 hematomas or hygromas that were months old?

4 A. You know, we keep coming back to, it would be hard for me
5 to know if we didn't have an old study to compare it to.
6 weeks, yes. I'd have to look back and see how old we've
7 documented.

8 Q. And if an injury in a child lasts for months, would it
9 be -- I don't know if this is even possible. I'm sorry for
10 maybe using layman's terms. But would you be able to say what
11 kind of severity of injury could last for four months?

12 A. Not a severe one.

13 Q. Why is that?

14 A. With a severe one, I think you're much more likely to get
15 accompanying brain injury. However, I'm not a pediatrician,
16 I'm not a neurologist, and I recognize that in a very young
17 infant, a neurologic examination is more challenging than in an
18 adult who can respond to a neurologic -- you know, move this,
19 do that. With a child, you're mostly observing and interacting
20 in a different way.

21 Q. Okay. And again, if this is something outside your
22 expertise, that's fine, but previously you had mentioned that
23 normally some of the smaller injuries are resorbed relatively
24 quickly.

25 A. Yes.

1 Q. Does that depend on the location, or does that depend on
2 the type of injury? What causes that?

3 A. Subarachnoid blood usually resorbs pretty quickly.
4 Intraventricular, a small amount resorbs quickly. A hemorrhage
5 in the brain, itself, usually takes longer. Weeks to sometimes
6 months. Subdural blood, it varies. It can sometimes take
7 weeks, several months in adults. Again, in infants, I'm not
8 sure how much data I have with evidence to show how long
9 they're followed.

10 Q. I don't know if you can say, but would a patient be
11 symptomatic if this had been a month long injury? Would they
12 have shown some sort of other symptomatology at other points?

13 A. I think we're getting outside my expertise as a
14 radiologist.

15 MR. MARSHALL: No further questions, Your Honor.

16 THE COURT: I've got --

17 MR. MARSHALL: Oh, I have two things to do, just
18 briefly at this point, Your Honor. I think there's Exhibit 26,
19 and I think even Exhibit 25 that we tendered outside the
20 exhibit binder. I just wanted to ask that we move those into
21 evidence as a part of our presentation here today.

22 MR. SAMORE: Same objection, Judge, and certainly I
23 understand the Court's ruling.

24 THE COURT: And Dr. Hart, his findings, that is in
25 this binder; right?

1 MR. MARSHALL: I'm not 100 percent sure.

2 MR. SAMORE: They are not, Judge.

3 MR. MARSHALL: Then, Your Honor, at this time we'd
4 like to move that in, as well as the images as a part of the
5 disc, and we can provide -- I don't have an extra copy with me
6 today, but I can provide them under separate cover, a disc to
7 the Court for the exhibit of the MRI and CT and x-ray scans.

8 THE COURT: well, for purposes of the record, I
9 think, since Dr. Hart was asked questions about his findings, I
10 think whatever report he issued ought to be a part of this
11 record.

12 As far as Exhibits 25 and 26, I understand counsel's
13 objection, but I'm going to go ahead and admit them for
14 purposes of the hearing.

15 MR. MARSHALL: Yes, Your Honor.

16 (Government Exhibits Nos. 25 and 26 admitted.)

17 THE COURT: So I guess in terms of Dr. Hart's
18 findings, in what form were they in? Was that in written form,
19 or was it on a disc?

20 MR. MARSHALL: Both, Your Honor. We have a paper
21 record. My only problem is, I have a double-sided copy and
22 there is extraneous information. So I'll get a clean copy to
23 the Court and to defense counsel.

24 THE COURT: That's fine.

25 MR. MARSHALL: And also, we would submit the imagery

1 which is on a disc for the CT and MRI scans, just for the
2 purposes of a complete record.

3 THE COURT: Okay.

4 MR. SAMORE: And may I? On behalf of the defense,
5 Judge, we would just ask that we leave that open to objection.
6 I'm very optimistic that working with our colleagues, we'll get
7 a chance to look at it and it will all be correct and we'll
8 admit it. But we'll get that work done. I think it's clear
9 that we all have a good bit of work to do after today.

10 I would also ask that because of the way the evidence
11 came in and the timing of it, and our previous objection, that
12 at least the doctor not be released from his subpoena subject
13 to being recalled at a later time when we finish this hearing.

14 THE COURT: Well, we can take that up if we need to.
15 But, yes, I don't have a problem with that. But let me -- I
16 did have a couple of questions that I wanted to ask Dr. Hart.

17 In the years I've been doing this, I've found that
18 there's a lot of overlap among various medical specialties, and
19 I was going to ask, as a neuroradiologist, you were called into
20 this case to, I guess, look at the CT scan and interpret it
21 with your findings.

22 THE WITNESS: Mostly the MRI. The CT was done at a
23 different hospital.

24 THE COURT: So you did the MRI?

25 THE WITNESS: Yes.

1 THE COURT: Where was the MRI done?

2 THE WITNESS: At UNM.

3 THE COURT: And the CT scan was done at the community
4 hospital?

5 THE WITNESS: Yes.

6 THE COURT: Okay. Based on your training and
7 experience, is a neurologist qualified to interpret a CT scan
8 and an MRI?

9 THE WITNESS: A neuroimaging fellowship that's done
10 by a neurologist typically is not as extensive as a
11 neuroradiology fellowship. The American Board of Medical
12 Specialties, that's the umbrella organization that's most
13 recognized, in the mid 1990s created a certification, a test
14 for certification in neuroradiology, and because of concerns
15 from neurologists and neurosurgeons who were sometimes
16 interpreting these scans, the Board, the umbrella organization,
17 set up a pathway for neurologists to take the examination. To
18 train, do some additional training, and take the examination.
19 And neurosurgeons. And I think relatively few have chosen to
20 do that. Instead, there was a separate pathway set up by an
21 organization that's not under this American Board of Medical
22 Specialties. So there are differences in training.

23 Radiology I think involves a lot more training and
24 understanding regarding the physics of the CT, MRI, and so on.
25 A neuroradiologist does some procedures that few -- well, in

1 the past, few neurologists did. Angiograms, putting a catheter
2 in and interpreting the angiogram from injecting contrast dye
3 into the head or elsewhere. Myelograms, which I do. Those
4 usually do not fall under a neurologist's training.

5 I'm a radiologist, and I have some -- maybe they
6 would be viewed as turf questions. But I think that the level
7 of training is higher for neuroradiology than neurology.

8 THE COURT: In terms of the standard of care, the
9 appropriate standard of care, as you understand it, at what
10 point are -- in other words, are you called in on any type of
11 head injury? What's the threshold level of an injury that a
12 neuroradiologist such as yourself would be called in to
13 interpret, or is it just routinely done?

14 THE WITNESS: At our hospital, we interpret all the
15 CT and MRI of the head, the neuroradiologists do. Or we have
16 radiologists trained in emergency radiology who do that, as
17 well. But it would all be, at our hospital, all be interpreted
18 by radiologists. Does that answer your question?

19 THE COURT: Yes, that does. What is the protocol
20 when you find a situation where you will make an
21 interpretation, and say a neurologist or a treating physician
22 will disagree?

23 THE WITNESS: Oh, we talk. We encourage them to talk
24 to us. Most of the time, we explain to them why we feel as we
25 do, and my experience is most of the time they say, oh, now I

1 see, I agree.

2 THE COURT: And that would be based on the more
3 extensive training that the radiologist has --

4 THE WITNESS: Yes.

5 THE COURT: -- in this area?

6 THE WITNESS: I mean, we're human, and once in a
7 while we miss something or they have information we don't have,
8 and occasionally after we talk I might put an addendum on a
9 report. In fact, there was a minor addendum in this case, but
10 that wasn't really a disagreement, it was just looking at it
11 and noting some additional findings.

12 But we talk, and if there is a major disagreement --
13 it's very, very unusual for that to happen. We are really
14 regarded as the best standard of care as far as interpretation.

15 THE COURT: Okay. Do counsel have any questions of
16 Dr. Hart in light of my questions?

17 MR. MARSHALL: No, Your Honor. Thank you.

18 MR. SAMORE: Not at this time, Judge.

19 THE COURT: All right. Thank you, Dr. Hart. You may
20 step down.

21 THE WITNESS: Thank you.

22 THE COURT: What's counsel's preference? We're at
23 2:00.

24 MR. NAYBACK: If the Court is so inclined, we could
25 take this up on December 13th and probably finish this hearing

1 completely.

2 THE COURT: Okay. Is that acceptable? Again, part
3 of the situation today is my scheduling issues.

4 MR. NAYBACK: That's quite all right, Your Honor. If
5 we have -- I don't know how much. We'll call two more, I would
6 say, witnesses who may go a little bit longer than Dr. Hart.
7 But if we have six or eight hours on the 13th, we'll certainly
8 get through this hearing.

9 THE COURT: Okay. Is that acceptable to you,
10 Mr. Samore?

11 MR. SAMORE: I'm sorry, Judge, when did we agree to
12 December 13th?

13 THE COURT: That's a date I have available. Does
14 that work for you?

15 MR. SAMORE: I will have to check. I will make it
16 work for me.

17 THE COURT: Well, why don't you do this. When I step
18 out, why don't you and Mr. Nayback -- Mr. Garcia controls the
19 calendar here. Let's go ahead and -- the witnesses are here,
20 so before everybody leaves, maybe get a firm setting on the
21 calendar, because otherwise it may fill up.

22 And let me just mention this. I'm going to allow you
23 to supplement, in terms of cases, particularly that
24 Massachusetts case, the appellate decision. You've already
25 tendered it?

1 MR. SAMORE: We did. It is before Mr. Garcia right
2 now, Judge, and a copy was provided to the Government.

3 THE COURT: Ultimately, to me, this comes down to
4 what the U.S. Supreme Court and the Tenth Circuit has held, and
5 I'm quoting this out of -- this is a typical standard that I've
6 used in other opinions. But, in Daubert v. Merrell Dow
7 Pharmaceuticals, 509 U.S. 579, the United States Supreme Court
8 explains that: "Rule 702 assigns to the District Judge a
9 gatekeeping role to ensure that scientific testimony is both
10 reliable and relevant." The gatekeeping function involves a
11 two-step analysis.

12 First, the Court must determine whether the expert is
13 qualified by knowledge, skill, experience, training or
14 education to render an opinion. Second, if the witness is so
15 qualified, the Court must determine whether the expert's
16 opinions are reliable under principles set forth under Daubert
17 and Kumho Tire.

18 Now, I recognize that the Government has raised
19 challenges to qualifications, but for purposes of this, just
20 for the sake of argument right now, let's assume that the
21 defense has overcome the qualification. The second part -- and
22 again, I'm quoting the Tenth Circuit, noted as recently as
23 2016.

24 "Although many factors may bear on whether expert
25 testimony is based on sound methods and principles, the Daubert

1 court offered five non-exclusive considerations." They're
2 non-exclusive, and that is: "whether the theory or technique
3 has (1) been or can be tested; (2) whether the theory or
4 technique has been peer-reviewed; (3) whether the theory or
5 technique has a known or potential error rate; (4) whether the
6 theory or technique has standards controlling the technique's
7 operation; and (5) whether the theory or technique has been
8 generally accepted by the scientific community." That Tenth
9 Circuit opinion is Etherton v. Owners, 829 F.3d 1209.

10 And then it goes on to state: "The Tenth Circuit has
11 reiterated that a District Judge asked to admit scientific
12 evidence must determine whether the evidence is genuinely
13 scientific as distinct from being unscientific speculation
14 offered by a genuine scientist." That's Dodge v. Cotter, 328
15 F.3d 1212.

16 And then the Supreme Court in Daubert stated that:
17 "The focus, of course, must be solely on principles and
18 methodology, not on the conclusions that they generate."

19 So, we can go very far afield in this case, but
20 again, I've articulated the legal standard that I'm going to
21 follow.

22 So with that, we'll be in recess. And then I'm going
23 to ask counsel to confer with Mr. Garcia, and then before the
24 witnesses who are going to be testifying on the 13th leave, if
25 we could verify that that works in their schedules. Otherwise,

1 let's pick another date and just get it on the calendar.

2 So with that, we'll be in recess. Thank you.

3 (Proceedings adjourned at 2:04 P.M.)

4 * * * * *

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE DISTRICT OF NEW MEXICO

3
4 UNITED STATES OF AMERICA,)

5 Plaintiff,)

6 vs.)

7 PATRICK DURAN,)

8 Defendant.)

No. 1:14-CR-03762-WJ

Daubert Hearing - Vol. 1

9
10 CERTIFICATE OF OFFICIAL COURT REPORTER

11 I, Mary K. Loughran, CRR, RPR, New Mexico CCR #65, Federal
12 Realtime official Court Reporter, in and for the United States
13 District Court for the District of New Mexico, do hereby
14 certify that pursuant to Section 753, Title 28, United States
15 Code, that the foregoing is a true and correct transcript of
16 the stenographically reported proceedings held in the
17 above-entitled matter on Monday, November 19, 2018, and that
18 the transcript page format is in conformance with the
19 regulations of the Judicial Conference of the United States.
20 Dated this 5th day of December, 2018.

21
22
23 MARY K. LOUGHRAN, CRR, RPR, NM CCR #65
24 FEDERAL OFFICIAL COURT REPORTER
25 333 Lomas Boulevard, Northwest
Albuquerque, New Mexico 87102
Phone: (505)348-2334
Email: Mary_Loughran@nmcourt.fed.us